User Guide for the Mobius Maxi ActionCam

Description
The above picture shows the arrangement of the user operating features.
►This manual does not cover replacing the internal battery or lens.
►This manual assumes the camera is loaded with the latest firmware available at the time of writing. Functionality may vary with earlier or later firmware versions.

Cards
You should always use micro SDHC or Micro SDXC cards with a class rating of 10 or above, the faster the better. The cards may either be formatted as FAT32 or exFAT. Cards with a capacity of up to 512GB have been tested.
Large cards formatted with FAT32 will drastically increase the camera's boot time. For example, it may take up to 15 seconds or more for the camera to boot with a 512GB card formatted with FAT32. There is virtually no start-up delay when using an exFAT-formatted card.
If a specific card does not work correctly after it has been freshly formatted you should no longer use the card with the camera. A different card, even an identical card, will most likely work perfectly.
►Setting the Video Quality to Extreme Fine uses a bitrate which lies outside the chipset specification. Only use extremely fast cards such as UHS U3, V30, V60 or V90 when the Extreme Fine parameter is set, especially in combination with 4K or 2.7K Video Resolution.
►**Important**: If the firmware detects that the card is too slow (class rating too low), it will decrease the recording speed and/or resolution and the parameter value will be overwritten.

Formatting
Standard formatting tools provided by the operating system are not always reliable and should not be used. In addition, they do not optimize the SD card's performance.
For optimal card performance it is recommended to either use the Windows setup program (mSetup, see below), the Android or iOS app (Mobius Maxi WiFi, see below), or use the camera's built-in formatter. Instructions for In-Camera Formatting are outlined below. In-Camera formatting is also available via the OSD menu.
Another excellent formatting utility is "SD Formatter" which can be downloaded from https://www.sdcard.org/downloads/formatter_4/index.html. This utility has been specifically designed to format SD cards.

In-Camera Formatting
The Camera contains a built-in formatter which should be used to format the SD card.

1. Disconnect the camera and ensure it is turned off.
2. Turn on the camera and wait until it is in one of the Standby modes (steady yellow, blue or red LED).
3. ► If the camera was set to auto-record, press the Shutter button (top left) to stop the recording.
4. Press and **hold down the Shutter button (top left). DO NOT RELEASE the button.**
5. Very quickly press the Mode button (top right) 4 times.
6. ► If the LEDs don't start to blink, release the buttons and start over again at 4.
7. The LEDs will blink very quickly while the card is being formatted.
8. Release the Mode and Shutter buttons once the LEDs start to blink (see above).
9. The camera will return to Standby mode when the formatting is finished.

USB connector
The Mobius Maxi uses a 10 pin Mini USB connector. Although 10-pin, the connector is compatible with all standard 5-pin mini USB cables for USB data transfer and charging.

Cables
The camera requires a standard (5-pin) USB cable for charging or connecting to external battery packs for continuous recording. A standard (5-pin) USB cable is also used to connect the camera to the PC in order to set the parameters or to access the camera as an external disk.
A special 10-pin USB cable is required for A/V out (TV-Out, Video-Out).
You must under no circumstances use any other "special" cable, especially the "special" cable supplied with the old #11 808 camera. Doing so will destroy your camera beyond repair. So, **do not use** a #11 "*special*" cable under any circumstances.
►Always use **HIGH QUALITY** USB cables. Cheap cables may lead to all sorts of problems. If possible, keep the cable as short as possible.
►The Mobius Maxi uses the same 10-pin cable as the Mobius 2.

Before you start
Before using the camera for the first time, ensure the internal battery is fully charged. See below under "Charging".

The Reset button

The reset button is in the small hole located on the right side in line with the center of the Power Button (looking at the camera from the top with the lens pointing forward). It can be pressed by carefully inserting a bent paper clip or similar instrument. The Reset button should only be pressed in case the camera no longer reacts to button presses. Pressing the Reset button will force the processor to restart. No parameter settings will be lost and the RTC (Real Time Clock) will not be interrupted.

The Power button
Press the power button (large, round button in the top center) until the LEDs start to blink. After a short while a steady yellow LED is shown. The camera is now ready for use (standby).

- To turn off the camera, first stop any recordings that may be running by pressing the shutter button (top left) and then press the power button for about 2 seconds until the camera turns off.

The Mode button
The Mode button (top right) enables the camera to be sequentially switched between 3 (4) different modes. Each button press advances to the next mode indicated by the LED color.

- Video Mode 1 (yellow LED). The frame rate and resolution can be individually configured.
- Video Mode 2 (blue LED). The frame rate and resolution can be individually configured.
- Photo Mode (red LED) which also includes Time-Lapse photos.
- Playback Mode (blue LED) only when external monitor (Video-Out/TV-Out) connected.

The Shutter button
Press the shutter button (top left) to start or end a video recording or to take a picture.

A word of warning
Never press the Power button together with the Shutter button. Doing so will set the camera in a special 'USB firmware Recovery Mode' and the buttons will no longer react. The only way to exit this mode is to press the Reset button using a small bent paper clip or similar instrument.

LED status indicators
The following LED states are for a camera **not connected** to the PC.

○ Steady Yellow - The camera is in Video Mode 1 and is on standby.

☼ Slowly flashing Yellow (1 sec. On, 1 sec. Off) - The camera is in Video Mode 1 and is recording video. The Video Recording indicator (see configuration) must be ON for this to work.

○ Steady Blue - The camera is in Video Mode 2 or Playback Mode (if an A/V cable is connected) and is on standby.

☼ Slowly flashing Blue (1 sec. On, 1 sec. Off) - The camera is in Video Mode 2 and is recording video. The Video Recording indicator (see configuration) must be ON for this to work.

○ Steady Red - The camera is in Photo Mode.

☼/☼ One Red/Yellow flash - The camera has taken a picture.

○/○ Steady Blue and Yellow (together) - The camera is in Mode 1 or Mode 2 with AE Lock and/or AWB Lock turned on. See below under "Additional Information".

☼/☼ Slowly flashing Blue and Yellow (together) - The camera is recording in Mode 1 or Mode 2 with AE Lock and/or AWB Lock turned on. See below under "Additional Information".

☼/☼ Slowly flashing Yellow and Red (together) - The camera is recording in Mode 1 without recording Sound. See below under "Additional Information".

☼/☼ Slowly flashing Blue and Red (together) - The camera is recording in Mode 2 without recording Sound. See below under "Additional Information".

○ Steady Green - The battery is charging.
In some cases 3 LEDs will be on or blinking at the same time, for example AE/AWB lock together with Audio recording turned off. Since the physical LEDs are not visible, it will be very difficult to see which LEDs are turned on in these cases. If both the Red and Blue LED are on at the same time the result will appear as purple.

The rear LED
If the camera is configured to show the Recording Indicator, then the rear LED will normally blink in sequence with the main LED while recording or in standby mode.
► The rear LED will blink when WiFi mode is enabled and the camera is waiting for a smart phone to connect. The top LED will be steady.

Connecting the camera to the PC
Make sure a card is inserted and the camera is turned OFF if you want to access the camera as an external device (disk drive, setup). Always connect the camera directly to the PC. Do not use a USB hub.
► You cannot record video or photos if the camera is connected to the PC as an external drive.

Charging

- Connect one end of the supplied standard USB cable to the camera.
- Connect the other end to a USB, 5V DC power source (wall charger, PC or external battery).
- When the yellow LED turns on, **press the Power button** for about two seconds to turn the camera OFF.

When charging, the green LED will be on. It will turn off when the battery is fully charged. Charging takes about 2 hours for a fully discharged battery with the camera turned off and connected to an external USB Charger. Batteries are not covered under warranty. If charged with under-rated chargers or by using a USB hub without an additional power supply, expect longer charging times. For optimum results, the charging voltage should be +5V under load. Only use quality chargers capable of supplying 1000mA (1A) and a stable voltage of at least 5V. Low quality chargers may not be able to supply enough current and can lead to premature battery failure or, in the worst case, even destroy the camera.
A new and fully charged battery will record about 90 minutes of 1080p 60fps videos.

Automatic Power Off from Standby mode
If the camera is in standby mode you must take a picture(s) or start a video recording within *30 seconds. The camera will automatically turn off after *30 seconds of no activity. *This value can be set using the setup program. Automatic Power Off can also disabled. When the special A/V cable is connected, automatic power-off will be disabled. This prevents signal loss during fpv use when the standby time times out.

Turn on Camera
Press the Power button (large round button in the top center) until the LEDs begin to blink. The camera is ready for use once the Yellow LED turns on. .

Turn off Camera
Press and hold the Power Button (large round button in the top center) for about 3 seconds until the LEDs start to flash. The camera will then turn off.

Switching between modes
The camera can be switched between the different modes by pressing the Mode button (top right). Each button click advances the camera to the next mode. Video Mode1 - Video Mode2 - Photo Mode - (*Playback Mode) - Video Mode1 etc.
► *If the camera is connected to an external Monitor/TV the camera will enter Playback mode (blue LED) after pressing the Mode button (top right) when in Photo mode. See OSD (On Screen Display) Menu below.

Recording Video Mode 1 or 2 (yellow or blue LED)
Start video recording.

- Briefly press the shutter button (top left).
- ► If the recording LED has been disabled, the yellow or blue LED will slowly blink 3 times and then turn off, indicating that recording has started.
- ► If the recording LED has been enabled, the yellow or blue LED will slowly flash at 2 second intervals indicating that the camera is recording.

Stop video recording.

- Briefly press the shutter button (top left). The camera will return to the standby mode from which the video was started.

Taking a Photo (red LED)

- Briefly press the shutter button (top left). The red LED will flash indicating that a picture was taken.

Removable Disk Mode

- Make sure the camera is turned off and a memory card is inserted.
- Connect the camera to the PC using a standard USB cable. The green LED may turn on at the same time indicating that the battery is charging.
- ► If this is the first time you are connecting the camera to the PC the operating system will attempt to install the iCatch drivers. This may take a few minutes.
- The LEDs will blink and after a short while the red LED will turn on.
- The camera is now in Disk Mode and a new removable drive should be available on your computer. The above procedure may take up to 30 seconds.
- ► You cannot record video or photos if the camera is connected to the PC in Removable Disk Mode.

USB Webcam Mode

► In Windows 10 you must ensure that programs have access to the Camera. The Camera access settings can be found under 'Privacy' from the 'Settings' dialog. Click the Windows Icon at the bottom left of the screen. Then click the Settings icon (Gear icon) a little higher up on the left. This will bring up the Settings dialog from which you should click 'Privacy' and then, on the left 'Camera'. Make sure that access to the camera is turned on. There are two ways in which you can enter webcam mode.

Method 1:

- Remove the SD card and connect the camera to the PC.
- The camera will connect in webcam mode.
- ► If this is the first time you are connecting the camera to the PC the operating system will attempt to install the iCatch drivers. This may take a few minutes.

- If the drivers were installed correctly the camera should now be in USB camera mode.

Method 2:

- Connect the camera to the PC until it is in Removable Disk Mode. See above.
- Very briefly press the Shutter button (top left). The camera will exit Removable Disk Mode.
- ► If this is the first time you are connecting the camera to the PC the operating system will attempt to install the iCatch drivers. This may take a few minutes.
- If the drivers were installed correctly the camera should now be in webcam mode.

►Note: Windows XP has an integrated WebCam viewer. Your Mobius should be visible in Explorer (My Computer) as a "USB Video Device". This functionality does not exist in Windows 7.

Camera Setup (configuration and date/time setting)

There are four methods in which the camera's date and time can be set or the parameters modified: A simple text file (works on most operating systems), an external monitor (OSD), using a dedicated program (GUI) for Windows, or usinfg a WiFi connection app for Android and iOS smart phones.

Whenever the firmware is updated you will need to set the parameters as well as the date and time. These are reset to their default values whenever the firmware is updated. In addition, the date and time will need to be set whenever the battery becomes discharged or is disconnected.

1. GUI (Graphical User Interface) configuration - recommended method for Windows users

On Windows it is recommended to always use the program mSetup.exe to modify the camera's configuration or format the SD card. mSetup communicates directly with the camera and makes configuring the camera a very simple task.

The camera must be in Webcam mode in order to set the parameters by software. See Webcam Mode, above.

2. WiFi configuration and Live-View - recommended method for Android v5.0 and above and iPhone iOS 8.0 and above

The Mobius Maxi (firmware v2.07 and above) supports Live-View and Configuration using the Android or iPhone app developed by the manufacturer. The app can be downloaded for free from Google's Play Store or Apple's App store.

In case of problems, or if you don't have a Play Store account, the Android .apk file may also be downloaded from the mSetup software download page.

The app needs access to your Location, so this must be enabled on your phone before you run the app.

Likewise, you must disconnect your current WiFi (internet/home network) connection and then (manually) connect your phone to the Maxi as soon as the camera's WiFi mode is enabled. Please refer to your phone's manual on how to connect/disconnect to WiFi.

The default password is 1234567890.

WiFi is enabled on the Maxi as follows:

1. Turn the camera on by pressing the Power button (large button in the top center) for 1-3 seconds until the top LEDs starts blinking.

2. After a few seconds the LED will remain constant and the camera will be in one of the three Standby Modes.

3. Press the Mode button (top right) for 1-3 seconds until the rear LED starts to blink.

3a. If the camera's beeper has been enabled, the camera will beep twice and then repeatedly beep while waiting for a WiFi connection.

4. On your phone, connect to the camera's WiFi which will be named "MobiusMaxi_0559c8" or similar.

5. When the phone is successfully connected to the camera the rear LED will remain on.

6. Launch the "MobiusMaxi WiFi" app and tap "Connect to Mobius".

The app will show a small live-view image from the camera. A full screen live-view can be obtained by turning the phone 90° so it enters landscape mode (must be enabled on your phone).

To set the parameters, select the correct Mode from the large Mode-Selector wheel and then tap the settings (Gear icon) icon on the top right of the screen. To see all the parameters, tap the "Advanced" button control on the top right of the settings screen.

The camera's parameter is immediately set when it is modified in the app.

After selecting the desired mode, press the large red button in the center of the Mode-Selector wheel to start a recording. If Photo Mode has been selected, a photo is taken. If a Video Mode has been selected then the video recording is started and WiFi connection will be lost.

► There is a brief help available in the app for connecting the phone to the camera.

► All of the video settings except for the "Video size" are common to both video modes, so changing one of the parameters in one video mode will also change the setting in the other video mode.

► The app requires at least Mobius Maxi firmware V2.07 to run correctly.

3. Manual configuration using an external monitor

It is also possible to manually change the configuration settings by using the On Screen Display (OSD) by connecting the camera to an external Monitor/TV. This requires a special cable.

1. Disconnect the camera from the PC and turn it off.
2. Connect the camera to an external monitor/TV using the special cable.
3. Optional. You may also connect the USB plug to a power source. The camera will automatically turn on.
4. Turn on the camera by pressing the Power button (large button in the top center) until the LEDs begin to blink.
5. Long-press the Shutter button (top left) to enter OSD Menu Mode.
6. Briefly press the Shutter button (top left) to switch between Recording settings and Basic settings. Ensure that no parameters are highlighted.
7. Briefly press the Mode button (top right) to move down the list or the Power button (large button in the top center) to move up the list.
8. Briefly press the Shutter button (top left) to change a parameter value.
9. Use the Mode button (top right) or the Power button (large button in the top center) to move down or up the list (see above).
10. Briefly press the Shutter button (top left) to select the value.
11. Long-press the Shutter button (top left) to exit OSD Menu Mode and return to Standby Mode.

► The meaning of the different buttons are shown on the OSD. Up, Down, Enter

► In order to switch between Recording settings and Basic settings make sure no parameters are selected. Use the appropriate buttons to move the selection up or down to the top or the bottom of the list.

► Also see OSD (On Screen Display) Menu, below.

4. Manual configuration using a text file

With firmware version 0.80 and above the parameters can be set by using a text file. This makes it possible to set the parameters using virtually any computer system. Previous firmware versions did not support this functionality. The text file must be named "SysCfg2C.txt" and must be located in the card's root folder.

You may use any ASCII editor, for example Notepad, to modify the parameters. The "SysCfg2C.txt" must be in plain ASCII, it must not be in Unicode. If you don't know what a root folder is, or you don't know what ASCII is or don't know how to manually edit ASCII files please use mSetup.exe or the method using an external monitor outlined above.

A "SysCfg2C.txt" first needs to be created by the camera. The camera's parameters are self explanatory, but be aware that the camera will not perform as expected or may even freeze if invalid values are set. It is much safer and easier to use one of the setup programs which will always configure the camera correctly.

The "SysCfg2C.txt" file can be automatically created as follows:

1. Disconnect the camera from the PC and turn it off.
2. Make sure a card is inserted. The card must be correctly formatted, and not full.
3. **Press and Hold Down the Mode button (top right). DO NOT RELEASE the button until step 7.**
4. Press and **Hold Down the Power button (large button in the top center).** The LEDs will start to blink.
5. After a few seconds there will be a steady yellow LED.
6. Wait about 2 seconds to be sure no other LEDs blink.

7. **Release the Mode button and <u>then</u> the Power button**. If you release the Mode button after the Power button the firmware will switch to Mode 2 (blue LED) because it thinks you have pressed the Mode button.

There should now be a "SysCfg2C.txt" file containing the camera's current settings in the card's root folder. This file can be edited as explained above.

Don't forget to save the file before "safely removing" the camera. The camera can now be disconnected from the computer.

Use the exact same sequence as outlined in steps 1 through 7 above to load the new settings back into the camera. Once the "SysCfg2C.txt" has been correctly loaded by the firmware it will be automatically deleted from the card's root folder.

►On rare occasions you may wish to keep the original configuration file in order to set the camera's parameters to specific values. In this case you should use the operating system to set the file's attribute to "Read-Only". You may then use different cards containing different parameter settings.

Using Software to configure the camera

The Windows program mSetup.exe will automatically configure the camera with the parameters you require (see above). It will also accurately set the camera's date and time or allow you to format the SD card. Detailed instructions can be found in the program by clicking the "Help" button. The camera must be in Webcam mode in order to set the parameters. The official WiFi app allows you to configure the camera or format the SD card from your smart phone (Android 5.0 and above or iOS 8.0 and above).

OSD (On Screen Display) Menu

Connect the camera to a monitor or TV and then turn it on.

► Long Press the Shutter button (top left) to enter Setup Mode. See above (Camera Setup - Manual configuration).

► To enter Playback Mode, press the Mode button (top right) to cycle from Video Mode1 -> Video Mode2 -> Photo Mode -> Playback Mode.

► When in Video Mode1, Video Mode2 or Photo Mode double-click the Shutter button (top left) to turn the OSD overlay (text/icons) off or on.

► When in Video Mode1 or Video Mode2 double-click the Mode button (top right) to turn the microphone on or off.

► Playback Mode. Double-click the Mode button (top right) to cycle between the Video, Photo and Locked folders

- Double-click the Mode button (top right) to cycle between the Video, Photo and Locked folders
- Use the Mode (Down) or Power (Up) buttons to select the file to play.
- In Video Mode, briefly press the Shutter button (top left) to play the video. See below (Playback Mode -> Video playback)
- In Photo Mode, double-click the Shutter button (top left) to exit Playback mode and return to Video Mode1.
- Double-click the Shutter button (top left) to exit Playback mode and return to Video Mode1.

► Playback Mode -> Video playback

- Press the Shutter button (top left) to pause/play the video.
- Press the Power button (large button in the top center) to fast forward the video.
- Press the Mode button (top right) to reverse the video.
- Long-press the Shutter button (top left) to exit Video playback Mode.

► In-Camera formatting is also available via the OSD menu.
► Also see Manual configuration under Camera Setup (Configuration), above

Firmware Update

New firmware versions usually correct issues found in previous versions but often provide new functionality which was not previously available.

Use mSetup (click the 'Tools' button) to automatically update the firmware. This is by far the easiest method.

► Prior to firmware version 2.26 it was possible to update the firmware without connecting external USB power or your computer. Because of the possibility of corrupting the boot loader (bricking the camera) in case of a weak battery or when using a Supercapacitor, this method is no longer supported.

Manual Firmware Update
DO NOT PRESS ANY BUTTONS during the firmware update process.
There are two similar methods with which you can update the firmware.

Method 1 (recommended method):

- Turn off the camera.
- Connect the camera to the computer and wait until the card is recognized as a Removable Drive.
- Copy the new firmware file (FWTP2C.BRN) into the camera's flash card root folder.
- Disconnect the camera from the computer and wait until it turns off.
- Wait until all the LEDs are turned off.
- Connect the camera to the PC. The green LED, indicating the battery is charging, may turn on. **WAIT**.
- The LEDs will blink indicating the firmware is being updated. **WAIT**
- The firmware will be updated when the LEDs stop flashing. After a few seconds the camera will beep once and will be recognized as a Removable Drive.
- The firmware file will have been automatically deleted.
- **The date and time and all parameters will be reset to their default values**.

Method 2:

- Turn off the camera and remove the card.
- Insert the card into an external card reader and connect the card reader to your computer.
- Copy the new firmware file (FWTP2C.BRN) into the card's root folder.
- Safely disconnect the card reader from the computer and remove the card.
- Insert the card into the camera. DO NOT turn the camera on or press any buttons.
- Connect the camera to external USB power or connect the camera to the PC. The green LED, indicating the battery is charging, may turn on. **WAIT**.
- The LEDs will blink rapidly indicating the firmware is being updated. **WAIT**
- The firmware will be updated when the LEDs stop flashing. The camera will then automatically turn on with a beep.
- The firmware file will have been automatically deleted.
- **The date and time and all parameters will be reset to their default values**.

Recording using an external power supply

With the Mobius Maxi, it is possible to charge the battery and record at the same time using a standard external USB 5V DC power supply. The power supply may be mains driven (normal household wall plug), or run off batteries, including the car charger USB plug (optional accessory) and cable supplied with the camera.

External USB power supplies usually only use the +5V and the - (Ground) wires. The 2 data wires are normally not used. However, some USB power supplies designed for a specific USB device may use different wiring schemes and thus may not work with this camera. To avoid possible problems, always use a generic power supply.

For recording video or taking pictures using a standard external power supply connection, the USB power supply can be connected at any time, i.e. before the camera is turned on, before the recording is started, or after the recording has been started.

►Only use a quality chargers capable of supplying 1000mA (1A) and a stable voltage of at least 5V. Low quality chargers may not be able to supply enough current and can lead to premature battery failure or, in the worst case, even destroy the camera.

►Extremely long recordings will cause the camera to become very warm which will affect the battery life. To avoid early battery failure it is recommended to use an optional Supercapacitor.

Additional information

The following functions/parameters need additional explanation:

Beeper

The camera is equipped with a built-in beeper. The beeper sound can be turned on or off using one of the setup methods described above.

G-Sensor

The camera is equipped with a built-in Gravity-Sensor which allows the camera to record upright video or pictures automatically, even when used upside-down. This feature can be turned on or off by using one of the setup methods described above.

The G-Sensor can also be enabled to sense abrupt changes of the center of gravity (impact) while recording video. The video file being recorded will be set to Read-Only and the file will be moved to the LOCKED folder on the SD card should a sudden change be detected.

► 'Loop Recording' must be enabled if the G-Sensor is also enabled in order to sense abrupt changes of the center of gravity.

► If the camera is permanently mounted in a specific position, for example as a dashcam, it is recommended to set the 'Rotate Image' parameter to either No or Inverted as appropriate. You should avoid setting it to Auto.

► Battery power consumption slightly increases when the G-Sensor is explicitly enabled or partially enabled by setting the 'Rotate Image' parameter to Auto.

(Auto) Rotate Image

The camera can be configured to record upside-down (inverted) which enables the camera to record normal video and photos with the buttons facing downwards. It is also possible to set the Rotate Image mode to 'Auto' which ensures the image will always be recorded in the upright position.

The manual "SysCfg2C.txt" parameter file has two separate parameter groups, each with two parameter settings, for the Rotate Image parameter. The Windows GUI software only has one group but with three possible parameter settings (see the Rotate Image Tooltip in the GUI for more information).

► If Auto mode is selected the Rotate parameter should also be set to it's normal start-up mode, either Inverted or not. This will avoid a possible very brief inverted image at the

beginning of the clip caused by the recording starting before the firmware has a chance to determine in which position the camera is recording.

Turn Audio on/off
With the camera turned on and in one of the two video Standby modes (steady yellow or blue LED), or while recording, rapidly press the Mode button 2 times. This will toggle the sound on or off.
If the sound has been toggled to off, the red LED will be shown together with the yellow or blue LED to indicate the sound will **not** be recorded.
► Beware - The toggle will remain active even after the camera is turned off.

Loop Recording
Loop recording can be enabled or disabled by software or by using the camera's OSD menu.
By default, Loop Recording is disabled meaning the camera will record clips until the card is full. The camera will then stop recording and enter standby mode.
If Loop Recording is enabled, the oldest clips will be overwritten when the card is full. As such, the camera will never stop recording and only the most recent clips will be available on the card.

Motion Detection
Motion Detection only works in video modes. It does not function in Photo Mode.
When Motion Detection is enabled, the Power-Off Standby timeout setting will be ignored. The camera will, therefore, not turn off unless there is no power left to keep the camera running, the memory card is full or the camera is manually turned off.
When Motion is detected, the camera will start recording and the selected Motion Timeout counter will be started. If no further motion is detected by the time the counter runs out the camera will save the recording and return to standby mode where it will wait for new motion detection.
If motion is detected while recording the timeout counter will be reset to the selected timeout.
The camera will continue recording until no more motion is detected and the timeout counter runs out or the 4GB file size limit is reached, or the memory card is full.
When the 4GB file size limit is reached the current recording will be saved and a new one will be started. There will be a 3 second gap between clips.

Image Stabilizer
Image Stabilization can help reduce jitter in recorded video. However, the results will vary depending on the amount of camera movement and scene. Under normal conditions, it is not recommended to enable Image Stabilization.
The Time Stamp will not be shown correctly when recording videos with Image Stabilization enabled. Always disable the Time Stamp when using Image Stabilization. Likewise, Image Stabilization will not work for videos recorded in 2.7K or 4K. It should be disabled.

File Protection (write protect) while recording
The current clip can be Write Protected by briefly pressing (max. 1 second) the Mode button while the camera is recording. The camera must have loop recording enabled for this function to work. This will set the file's read-only attribute which will prevent the current recording from being deleted. The video clip will be moved to the SDs 'LOCKED' folder. Note that formatting the card will delete all the files, including the protected files with the read-attribute set.

AE Lock (Auto Exposure Lock) / AWB Lock (Auto White Balance Lock)

AE Lock (AEL) and AWB Lock (AWBL) are advanced functions first implemented in firmware version v0.53 and above. Their **functionality is disabled by default**.
AEL and/or AWBL functionality **must be explicitly enabled in the settings parameters**.
AWBL functionality requires the White Balance parameter to be set to 'Auto'.
AE/AWB can be locked while the camera is either in standby mode or recording mode.
To turn on AEL/AWBL point the camera at the object you want to correctly exposure and then set the lock as follows:

- If the camera is in Standby mode or recording, briefly press the Power button until an additional LED (yellow or blue, depending on which mode the camera is in) turns on. This indicates that AEL and/or AWBL is turned on.
- If the camera is in Standby mode or recording, briefly press the Power button until the additional LED (yellow or blue, depending on which mode the camera is in) turns off. This indicates that AEL and/or AWBL has been turned off.

- AEL/AWBL will remain turned on until they are manually turned off, another Mode is selected, or the camera is turned off.
- An additional icon will be displayed on the external monitor if connected and OSD is turned on.

TV Video-Out Full Screen

The Video-Out format parameter can be set to 'Normal' 16:9 or 'Full Screen'. If set to 'Normal', the Video-Out image will be shown in its native 16:9 ratio. Most monitors will show black bars top and bottom.
If set to 'Full Screen', the Video-Out image will be shown zoomed with the sides cropped from 16:9 to 4:3.
How the image actually appears on the monitor will also depend on how the monitor handles the video signal.
This parameter may also be set (and saved) during Video-Out preview as follows:

- Make sure the image is visible on the monitor.
- Double-click the Power button to toggle the output between 'normal' and 'full screen'

WiFi

WiFi functionality may vary slightly depending on which firmware version is installed.
The Android or iOS App must always be the correct version written specifically for the camera's installed firmware version.
It is important to note the following when WiFi is enabled:

- When operating the camera using the internal battery WiFi should only be used for short periods. For example setting the parameters, formatting the card, aligning the camera, setting the focus etc.
- WiFi must never be used for FPV RC model control.
- WiFi consumes approx. 150mA of additional current which results in the camera generating more heat. Long term use with WiFi enabled is not recommended, especially in hot environments.
- If the battery state is too low to establish a WiFi connection the rear LED will rapidly flash 5 times to indicate that a WiFi connection is not possible.
- WiFi will be immediately disconnected if a video recording is started with 4K or 2.7K video resolution, even when the 'WiFi Keep Connection' parameter has been set.

- WiFi will be immediately disconnected once a video recording is started unless the 'WiFi Keep Connection' parameter has been set (see 4K or 2.7K video resolution exceptions above).
- WiFi will not be turned on when the camera is connected to external power and the 'Auto Record External Power' parameter set to On.
- When using the camera without external power WiFi functionality requires a healthy and charged battery. Failure to do so may lead to unpredictable results and even random lock-ups.

Trouble shooting

Q. When I press the Power button, nothing happens.
A. An apparent 'dead' camera can be caused by the following:

- The battery is flat or defective. Replace or charge the battery.
- The Firmware may have locked up. Use a paper clip or similar object to press the Reset button.
- The lens module cable is not properly inserted or defective. Ensure the lens cable is firmly and squarely seated at both ends. Take note that the connectors have an opening mechanism. Never use force to insert/remove the cable.

Q. When I turn on the camera or while recording the rear LED continuously blinks very quickly. The camera will, at some time, turn off.
A. The battery is almost depleted and needs to be recharged.

Q. When I turn on the camera the top LEDs blink (Blue and Yellow or Blue and Red and Yellow) and the rear LED rapidly blinks 20 times. The camera then turns off.
A. There is no SD card inserted or the SD card is not making proper contact. Insert the card and/or clean the contacts.

Q. When I try to record a video or photo the yellow and blue LEDs blink slowly about 4 times. The blinking rate then increases and the camera turns off after a few seconds.
A. There is a problem with the SD card.

- The card is full. Format the card using SDFormatter, if possible.
- The card is not formatted correctly. Format the card using SDFormatter, if possible.

Q. The camera functions normally but only records very short clips and may turn off.
A. This can be caused by the following:

- The battery may not be charged. Charge the battery for about 2 hours until the green LED turns off.
- The battery is too cold to provide the power needed to record video. Keep the battery warm before using the camera in cold temperatures (around freezing and below).
- Check the integrity of your card by using the program h2testw to make sure your card is genuine and not a fake card that has been up-rated.
- The card used is not compatible with the camera. Use class 10 cards for best results.

Q. When I turn on the camera the rear LED will remain on, even after pressing the Reset button. The top LED is off but may initially show a very short blink.
A. The lens module cable is not properly inserted or defective. Ensure the lens cable is firmly and squarely seated at both ends. Take note that the connectors have an opening mechanism. Never use force to insert/remove the cable.

Q. The camera does not react.
A. The firmware may have entered a continuous loop, or the battery may be discharged.

- Make sure the battery is fully charged.
- Use a paper clip or similar object to press the Reset button. This should force the camera to be turned off.
- Wait a couple of seconds.
- Turn on the camera if it does not turn on automatically.
- As a last resort, disconnect the battery and reconnect again after waiting 30 seconds.

Q. The camera is not recognized as a removable disk.
A. The operating system must be XP or greater. The camera must be connected using a standard USB cable. Confirm the cable is not defective by attaching another USB device using the same cable. Do not use a USB hub. Try using another USB port.
Defective cables are the most common problems when the camera is not correctly recognized by the PC.
The iCatch drivers may not be installed correctly. Disconnect the camera from the PC, power down the PC and start over. An Internet connection is required in order to download the drivers.

Q. The camera is not recognized by mSetup or Webcam programs.
A. The camera must be in Webcam mode, **not** Removable Disk mode. The camera must be connected using a standard USB cable. Confirm the cable is not defective by attaching another USB device using the same cable. Do not use a USB hub. Try using another USB port. Defective cables are the most common problems when the camera is not correctly recognized by the PC.
The iCatch drivers may not be installed correctly. Disconnect the camera from the PC, power down the PC and start over. An Internet connection is required in order to download the drivers.
You may need to rollback or update the driver software in Device Manager.

Q. An SD card is installed, but the camera is not recognized as a removable disk.
A. If you are sure your USB cable is not defective, then it's possible that the PC USB drivers are not working properly. DriveCleanup.exe (freeware) may be able to fix USB corruption problems.

Q. It is not possible to eject the SD card.
A. Most likely the battery has become swollen and is wedged against the SD card holder preventing removal of the card. Very carefully open the camera holding a finger against the card to prevent it flying out and being lost. Replace the battery.

Q. When the camera is connected as an external disk all the files on the SD card appear as corrupt.
A. There is a problem with your cable or the PC USB drivers are corrupt.
DriveCleanup.exe (freeware) may be able to fix USB corruption problems.

Q. The camera does not charge or does not automatically start recording when external power is connected and the 'Auto Record External Power' parameter is set appropriately.
A. External USB power exceeds ~5.25V or is under-powered.

Q. Playback is erratic or stutters or the playback colors are psychedelic or the video flashes, has corrupted blocks etc.
A. Always first copy the video file from the memory card to your hard drive.

- Your PC or graphics card may not be powerful enough to playback the video stream.
- You may not have enough memory installed in your PC.
- Use VLC Media Player or MPC-HC (Media Player Classic - Home Cinema). Windows Media Player often chokes on underpowered machines.
- Psychedelic colors may also indicate problems with the CMOS lens module. Make sure the CMOS lens cable is correctly seated and not cracked. The lens cable is very fragile.

Q. The camera records video with a different frame rate and/or resolution than defined by the parameter settings.
A. The card's Class rating is too low. If the firmware detects that the card is too slow (class rating too low), it will decrease the recording speed and/or resolution.

Q. The camera functions normally but the video is completely black.
A. Make sure the lens cap is removed.

Q. The camera functions normally but no sound is recorded.
A. Make sure the audio has not been toggled off (see above). The red LED will be shown together with the yellow or blue LED if the sound has been muted. Also make sure the External Microphone parameter is set to 'Disable'.

Q. There is a distinctive buzzing or clicking noise when videos are played back.
A. Only use quality micro SD cards with a class rating of 10 or greater. Low quality cards can draw excessive current which may result in electrical noise in the recording.

This manual was last updated on 7. October 2021