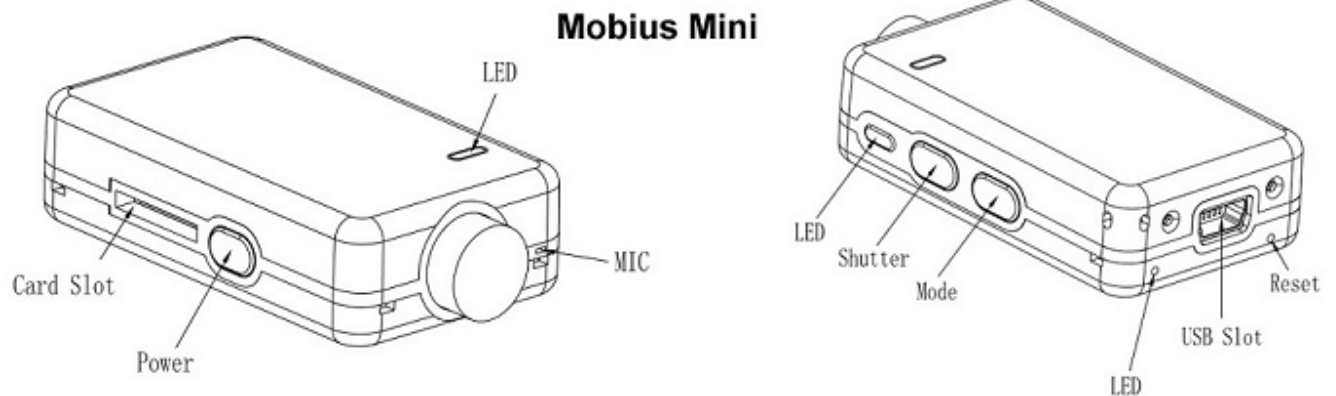


# User Guide for the Mobius Mini2 ActionCam



## Description

The above picture shows the arrangement of the user operating features.

The Mobius Mini2 uses a similar case design to the case used in the original Mobius Mini. However, the Mini2 uses completely different hardware compared to that used in the Mini. As such, the Mini2 is much more power-efficient and generates much less heat during operation, eliminating the need for the internal metal heat sink and it's 4 brass screw studs that protruded through the Mini case bottom. Operation time is almost double that of the original Mini.

► 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 cards may either be formatted as FAT32 or exFAT. Cards with a capacity of 200GB have been successfully tested.

Important: If the card is too slow (class rating too low), there is a possibility the camera will prematurely stop the recording.

## 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) or use the camera's built-in formatter. Instructions for In-Camera Formatting are outlined below.

Another excellent formatting utility is "SD Formatter" which can be downloaded from [https://www.sdcard.org/downloads/formatter\\_4/index.html](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 or blue LED).
3. ► If the camera was set to auto-record, press the Shutter button to stop the recording.
4. Press and **hold down the Shutter button for about 2 seconds. DO NOT RELEASE the button.**
5. Quickly press the Mode button 4 times.
6. After a second or two the yellow or blue LED will begin to blink rapidly.
7. ► If the LEDs don't start to blink, release the buttons and start over again.
8. Release both buttons as soon as the LED starts to blink.
9. You now have up to 15 seconds to confirm you wish to format the card.
10. Press the Shutter button to confirm that the card can be formatted, OR, press the Power button to abort the formatting.
11. ► If no button is pressed within 15 seconds the camera will turn off.
12. The top LED will blink while the card is formatted.
13. The camera will turn off when formatting is finished.

## USB connector

The Mobius Mini2 uses a standard 5 pin Mini USB connector which is used for USB data transfer and charging. A/V out (TV-Out, Video-Out) is not supported.

## Cables

Always use **HIGH QUALITY** USB cables. Cheap cables may lead to all sorts of problems. If possible, keep the cable as short as possible.

## 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 below and to the right of the USB Socket (looking at the camera from the rear). 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

The power button is used to turn the camera on or off. See below "Turn On camera" and "Turn Off camera".

## The Mode button

The Mode button enables the camera to be sequentially switched between 3 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.

## The Shutter button

Press the shutter button to start or end a video recording or to take a picture.

## 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 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 Green - The battery is charging.

## 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.

## 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 or blue 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 at least 1000mA (1A) and a stable voltage of 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 60 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 be disabled.

## Turn on Camera

The camera can be configured to turn on immediately the power button is pressed or it can be configured to only turn on after pressing the power button for a few seconds.

The camera can be configured to power up in either Mode1 or Mode2 and is ready for use once the Yellow or Blue LED turns on, indicating the camera is in standby mode.

► Delayed Power-On is useful in order to prevent the camera from being inadvertently turned on.

► Do not keep the power button pressed for too long. Doing so will first turn on the camera and then turn it off again.

## Turn off Camera

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

## Switching between modes

The camera can be switched between the different modes by pressing the Mode button. Each button click advances the camera to the next mode. Video Mode1 - Video Mode2 - Photo Mode - Video Mode1 etc.

## **Recording Video Mode 1 or 2 (yellow or blue LED)**

### **Start video recording.**

- Briefly press the shutter button.
- ► 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. The camera will return to the standby mode from which the video was started.

## **Taking a Photo (red LED)**

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

## **Webcam Mode**

There are two methods with which you can enter Webcam Mode.

### **Method 1:**

- Remove the flash memory card.
- Connect the camera to the PC using a standard USB cable.
- The yellow LED will first turn on but will be replaced by the red LED when the camera is ready.
- ► If this is the first time you have connected the camera in WebCam mode, Windows will automatically install the required drivers. This may take a few minutes.
- The camera is now in Webcam mode.
- Start your favorite WebCam software, such as the W10/11 native “Camera” APP or a third party program such as AMCap (vers 9.23 or above). If your screen is black and the camera lens cap is removed, the software is not configured correctly or is not compatible with the driver. The W10/11 Camera App will find and automatically recognize any single connected compatible webcam. For other programs such as AMCap, make sure the program shows the “TLCAM” as the “device” selected for video capture. If this option does not show in the “device” option list, restart the webcam program and check again.
- There is no audio available in Webcam mode.

## Method 2:

- While the camera is connected to the PC as an external drive, briefly press the Shutter button.
- ► If this is the first time you have connected the camera in WebCam mode, Windows will automatically install the required drivers. This may take a few minutes.
- The camera is now in Webcam mode.
- Start your favorite WebCam software, such as the W10/11 native “Camera” APP or a third party program such as AMCap (vers 9.23 or above). If your screen is black and the camera lens cap is removed, the software is not configured correctly or is not compatible with the driver. The W10/11 Camera App will find and automatically recognize any single connected compatible webcam. For other programs such as AMCap, make sure the program shows the “TLCAM” as the “device” selected for video capture. If this option does not show in the “device” option list, restart the webcam program and check again.
- There is no audio available in Webcam mode.
- ► The camera must be disconnected in order to exit Webcam mode.

## 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.
- 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.
- ► If the camera is not recognized as a removable disk you may have to turn the camera on (with memory card inserted) before connecting to the PC.

## Camera Setup (configuration and date/time setting)

There are two 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) or by using a dedicated program (GUI).

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

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.

## 2. Manual configuration using a text file

The parameters can also be set by using a text file. This makes it possible to set the parameters using virtually any computer system. The text file must be named "MM02Config.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 "MM02Config.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 as outlined above.

A "MM02Config.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 the setup program which will always configure the camera correctly.

The "MM02Config.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. DO NOT RELEASE the button until step 7.**
4. Press and **Hold Down the Power button**. The LEDs will start to blink.
5. After a few seconds there will be LED activity.
6. Wait another few seconds until all the LEDs (top and rear) turn off.
7. **Release the Mode and Power buttons.**

There should now be a "MM02Config.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 "MM02Config.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 and update the camera's firmware. Detailed instructions can be found in the program by clicking the "Help" button.

## Firmware Update

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

► You **must** use a memory card formatted to FAT32 in order to update the firmware. Cards with a capacity up to 32GB are natively formatted with FAT32. Larger cards are natively formatted with exFAT and cannot be used to update the firmware.

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

### Manual Firmware Update

**DO NOT PRESS ANY BUTTONS during the firmware update process.**

There are two methods with which you can update the firmware.

#### ***Method 1 without pressing any buttons (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 files 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 rapidly indicating the firmware is being updated. **WAIT**
- The firmware will be updated when the LEDs stop flashing and the camera is recognized as a Removable Drive.
- The firmware file will have been automatically deleted.

#### ***Method 2 by pressing the power button :***

- 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 files 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.
- Turn on the camera and **WAIT**.
- The LEDs will blink rapidly indicating the firmware is being updated. **WAIT**
- The firmware will be updated when the LEDs stop flashing.
- The firmware file will have been automatically deleted.
- The camera is now ready for use.

► After updating the firmware the date and time and all parameters will be reset to their default values.



## **Recording using an external power supply**

With the Mobius Mini2, 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 at least 1000mA (1A) and a stable voltage of 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.

## **Additional information**

The following functions/parameters need additional explanation:

### **Loop Recording**

Loop recording can be enabled or disabled.

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.

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

AE Lock (AEL) and AWB Lock (AWBL) are advanced functions available for both video modes.

It is not available for photo-mode. 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 Shutter button until the red LED turns on in the background. The background LED will turn off when the button is released. AEL and/or AWBL is now turned on.
- AEL/AWBL will remain turned on until another Mode is selected, or the camera is turned off.

## Trouble shooting

Q. When I press the Power button, nothing happens.

A. The battery is flat or defective. Replace or charge the battery. Use a paper clip or similar object to press the Reset button.

Q. When I press the Power button, the Red LED turns on for about 2 seconds but then turns off.

A. Most likely the camera has been configured for Delayed Power-On. See above "Turn On Camera". Modify this parameter if you require Fast-Power-On.

Q. When I turn on the camera the yellow and red LEDs blink rapidly about 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. 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.

Q. An SD card is installed, but the camera is not recognized as a removable disk or by mSetup.

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.

- 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.

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 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).

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. Low quality cards can draw excessive current which may result in electrical noise in the recording.