

# SJCAM



# M20

HD DV  
1.5" LCD Screen



# User's Manual

Firmware ver1.2.7

ENGLISH



## INTRODUCTION

*We believe everyone has a dream. Our mission is to make you express yourself, your vision and dreams in order to make them real, and share them with others.*

*In the last 10 years of experience in Research and Development and Commercialization, we have gained world recognition from customers and retailers, with the ambition to give people the possibility to create, explore and empower their dreams.*

*Having our own factory, controlling the whole production process, and a facility with more than 500 employees, makes us more versatile and able to reach the market fast, ensuring that the highest quality standards are met. It is all about dreams.*

*Dare to join the SJCAM Revolution.*

*-SJCAM CEO*





## Congratulations on your new SJCAM Action Camera!

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We know you're excited to use the M20, please take time to read this Manual before doing anything with it. There's plenty you can do, so you need to familiarize yourself with the features now to get the most out of it.

It is important to keep your camera's firmware up to date.

Go to [www://sjcamhd.com/firmware/](http://www://sjcamhd.com/firmware/) to download the firmware files and read through the latest performance improvements and feature updates.

### ***CAUTION!***

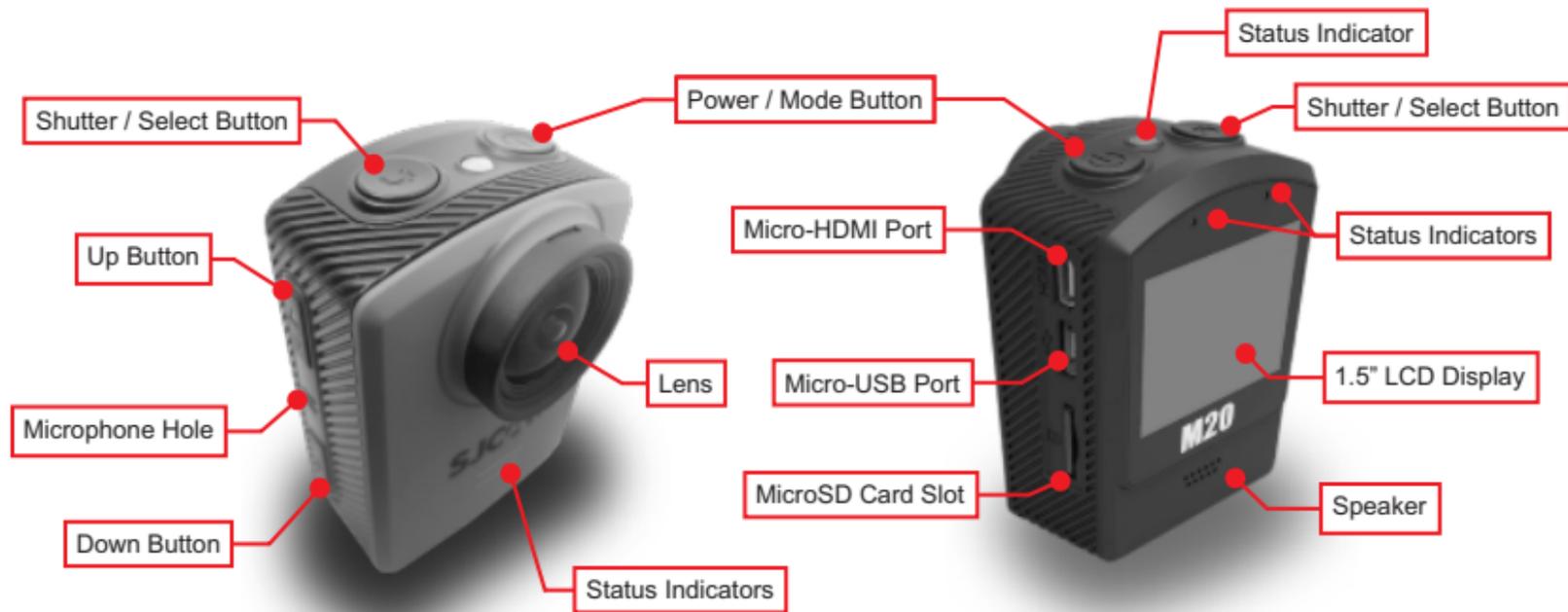
1. This is a high-precision product. Do not drop.
2. Do not expose the unit to strong magnetic fields, such as magnets, electrical motors, and machinery that use strong radio waves.
3. Never leave the unit in high temperature areas. Electronics and optics can be damaged under prolonged exposure to heat.
4. Do not submerge the camera without putting it in the included waterproof case.
5. Avoid extended periods of battery charging. Keep it away from children and pets to avoid accidents.

# SJCAM M20 SPECIFICATIONS



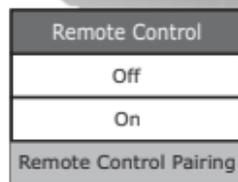
- 16.35mp Sony IMX206 sensor
  - 4K\* @ 24fps (2880\*2160) \*4K is interpolated, 2K(2560 x 1440)30fps / 1080P(1920 x 1080) 60fps / 720P(1280 x 720)120fps, WVGA@240fps
  - Built-in Gyro Anti-shake Stabilization Sensor (Hardware)
  - Slow Motion: -2X, -4X, -8X
  - Adjustable Wide-Angle View Lens – Adjust between wide, medium, narrow
  - 1.5 inch LCD Screen
  - RAW for taking photos
  - Anti fish-eye mode (Distortion Correction)
  - FPV Mode
  - Time lapse Video / Picture Record
  - Burst Mode – Take up to 3 pictures per second (for rapid shutter action)
  - Latest NTK96660 Novatek CPU
  - AV-Out – Instant AV-out supported
  - Underwater Record mode
  - Dashcam mode
  - Motion Detection
  - HDMI-out – Real-Time Video Record
  - 18 supported languages: SJ5000x Elite adds OSD support for: Czech, Slovak, Hungarian, Danish, Dutch, Turkish
  - Android & iOS Wireless mobile connection via Wi-Fi – preview / shoot videos & pictures remotely
- Image Sensor 16.35 Mega Pixel Sony IMX206
- Image resolution:  
16 Mega Pixel (4608\*3456) | 12 Mega Pixel (4032\*3024) | 10 Mega Pixel(3648\*2736) |  
8 Mega Pixel (3264\*2448) | 5 Mega Pixel (2592\*1944)  
3 MP(2048\*1536)/ 2MHD(1920\*1080)/ VGA(640\*480)/ 1.3MP(1280\*960)
- Video resolution 4K (2880\*2160) @ 24fps (Interpolated), 2K (2560\*1440)@ 30FPS  
1080P(1920\*1080)@ 60FPS, 720P (1280 x 720) @ 120FPS, WVGA @ 240fps (Slo-Mo)
- Default resolution Video:1080P / Picture:4032\*3024
- Video format(s): MP4 or MOV / Image format(s): JPG or RAW
- Waterproof Up to 30 meters (requires waterproof case)
- Lens Adjustable wide-angle fish-eye lens Adjust between Wide Medium Narrow
- Memory Slot for Micro SD card up to 32 GB \*Selected 64gb & 128gb Cards (Class 10)

# PARTS OF YOUR CAMERA



# SJCAM M20

# SJ SMART REMOTE (Optional)



Once your Remote is paired, you will never need to pair it again. Everytime the M20 is turned on, your Remote can send instructions to your camera.

The Remote is tested to work at a maximum distance of 30 feet (10 meters).

The battery on your Remote will last you a long time as it only uses power when you press any of the buttons.

If you need to replace the battery, you will need a coin to open the battery door and a Lithium CR2032 button-cell to replace the old one.

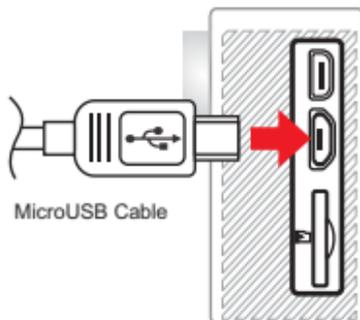


### Removing the M20 from the Waterproof Case.



Remove the camera from the waterproof case by lifting the clasp from the front side of the case, following the steps shown above (1 & 2). Once free, swing the backdoor open, then pull the camera out from the waterproof case.

### Charging your camera using the MicroUSB cable.



Plug the MicroUSB cable to the slot on the side of the camera as indicated above, and the other end to a USB wall charger with an output of 5V 1A, or plug it to a computer.

### Removing the battery.



Remove your battery by sliding the lock at the bottom of the camera to release the compartment door. Pull the battery out by the flap, plug it to an External Dual Charger Accessory (not shown, sold separately).

## Powering ON/OFF your M20



Press the Power/Mode button to turn your camera on. You will hear a beep, indicator LEDs will light up, and the screen will display the SJCAM logo. Default Mode is Video. To turn off your camera, long-press the Power/Mode button.

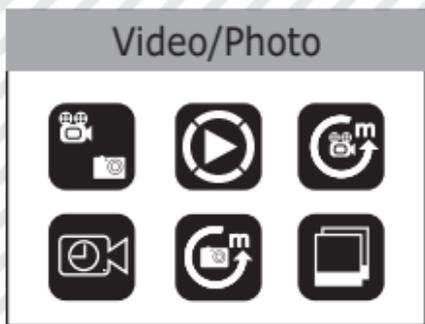
## Inserting / Removing Memory Cards

*Class 10 or higher  
MicroSD card.*



Insert a MicroSD card as shown in the illustration above, with the label facing the LCD screen, until it clicks into place. To remove, just push it in gently and the card will eject.

**NOTE:** To make sure you do not lose any data, only remove or insert your card while the camera is off.



**TIP:** You can access the quick-menus by pressing the **DOWN BUTTON** when you are inside a Mode. Each set of menus will vary depending on what Mode you are in.

# MAIN MENU 1



**VIDEO / PHOTO MODE:** Record videos or Still Photos.



**Playback Mode:** Displays the recorded Videos or Photos. Choose an item using Up/Dwn button; Shutter to play.



**VIDEO LAPSE:** Time-lapse photography stitched on-cam to produce a video.



**SLOW REC:** For recording video in slow motion.



**PHOTO LAPSE:** Timelapse, with each frame saved as its own picture file.



**BURST MODE:** Fast multiple succession of snapshots, choose the number of photos desired (Max: 10 consecutive shots).



## Underwater



# MAIN MENU 2



**UNDERWATER MODE:** Adds red to images to eliminate the need for a red-filter when using the camera underwater.



**FPV MODE:** Enables live real-time analog video to be fed through the USB out (Requires AV-out cable).



**MOTION DETECTION:** Starts recording when motion is sensed in front of the camera.



**CAR MODE:** Automatically starts the camera and begins recording once the engine is started (Car Charger Cable Accessory required).



**REMOTE CONTROL:** Enables or disables remote control coming instructions. Also for pairing the Remote.



**SETUP:** For making changes to camera settings regardless of mode.

Setup	
Resolution	▼
Loop Recording	▼
FOV	▼

**TIP:** Use the Up / Down buttons to navigate through the menu. Use the Shutter button to select an item.

To exit an item in the Setup menu, or to get back to the main Icons, press the Mode button once.



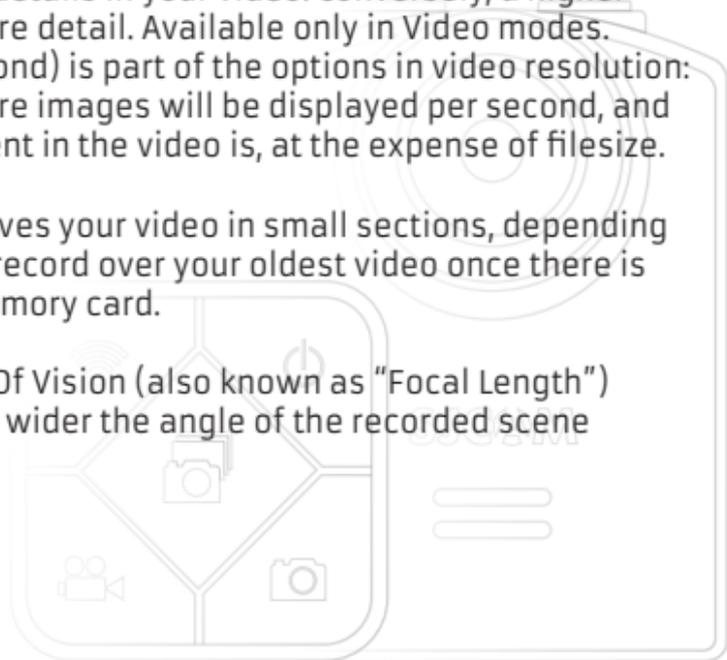
## SETUP SCREEN 1

**RESOLUTION** > Changing to a higher resolution will have more detail in your video at the expense of file size. A lower resolution has a smaller filesize but will have less details in your video. Conversely, a higher resolution will contain more detail. Available only in Video modes.

**Note:** FPS (Frames Per Second) is part of the options in video resolution: The higher the FPS, the more images will be displayed per second, and the smoother the movement in the video is, at the expense of filesize.

**LOOP RECORDING** > Auto-saves your video in small sections, depending on selected length. It will record over your oldest video once there is no more space on your memory card.

**FOV** > Field Of View / Field Of Vision (also known as "Focal Length") The higher the setting, the wider the angle of the recorded scene becomes.



## SETUP SCREEN 2

Setup	
WDR	▼
Gyro Sensor	▼
Audio	▼

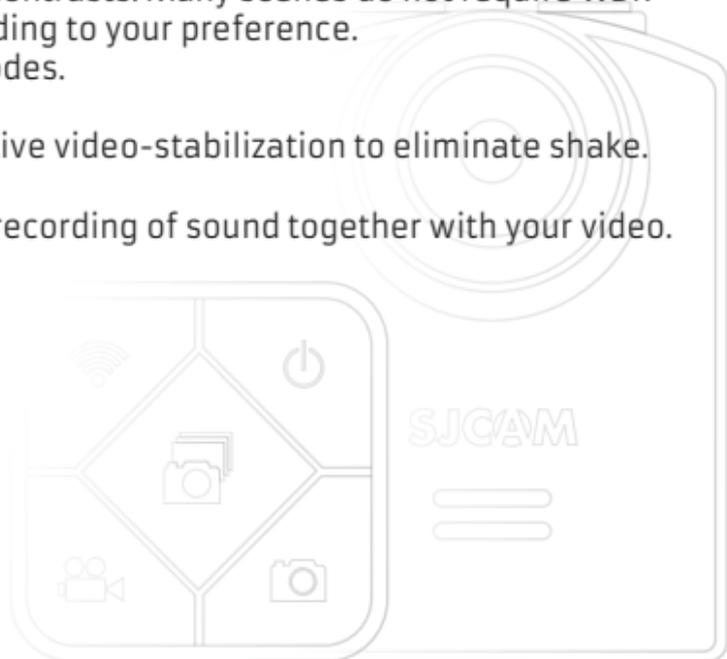


**TIP:** For a more stable video or photo, turn on the Gyro Sensor. You will know if it's active when you see a blinking hand on the upper right hand of the Display.

**WDR** > Automatically adjusts the range of brightness-to-darkness that the camera will record. When turned on, it will help balance your pictures by adjusting the contrasts. Many scenes do not require WDR to be activated, use according to your preference. Available only in Photo modes.

**GYRO SENSOR** > Enables active video-stabilization to eliminate shake.

**AUDIO** > Enable or disable recording of sound together with your video.



## SETUP SCREEN 3

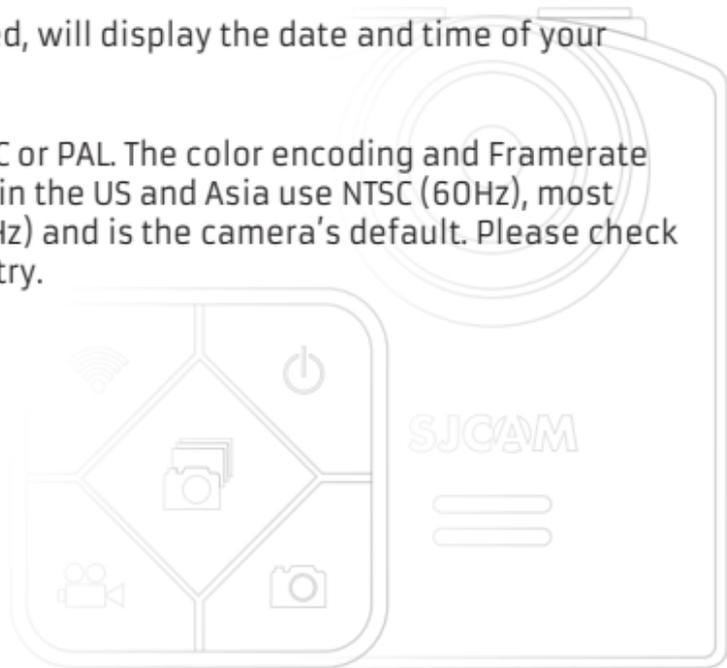
Setup	
Volume	▼
Time Stamp	▼
TV Mode	▼

**TIP:** Time Stamp is best used when using your camera as a dashcam. The date and time of the recording will be superimposed on your video or photo on the lower left hand of the display.

**VOLUME** > Adjusts how sensitive your camera's microphone becomes. Settings for how soft or how loud sound is recorded with your video.

**TIME STAMP** > When enabled, will display the date and time of your recording.

**TV MODE** > Options are NTSC or PAL. The color encoding and Framerate for video recording. Users in the US and Asia use NTSC (60Hz), most other countries is PAL (50Hz) and is the camera's default. Please check what you use in your country.



## SETUP SCREEN 4

Setup	
OSD Mode	▼
Video File Format	▼
Bitrate	▼



**OSD MODE** > On-Screen Display. When enabled, information and icons will be displayed on the screen indicating what features are activated, current mode, recording, elapsed time, number of photos left, battery status, etc.

**VIDEO FILE FORMAT** > Choose between .MOV or .MP4. If you are unsure which to use, choose MP4, as it is more commonly used.

**BITRATE** > Changes how much information is included in each frame of video. Higher bitrates give more definition to your video at the expense of filesize.



## SETUP SCREEN 5

Setup	
Double File	▼
PowerOn Record	▼
Image Size	▼



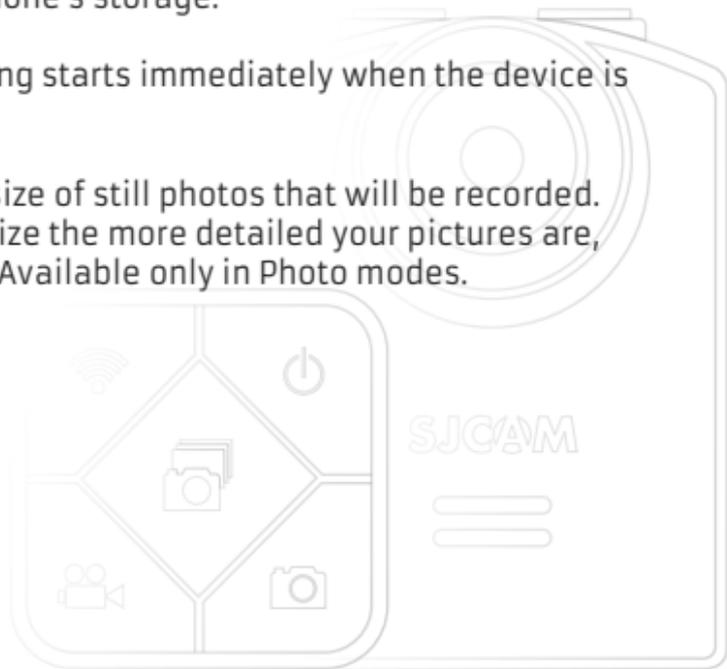
**TIP:** Pressing the Up button while recording or framing a scene will initiate the zoom function. Use the Up/Down buttons to adjust electronic zoom level.

**NOTE:** There are 8 zoom levels. To use the zoom function, FOV must be turned OFF.

**DOUBLE FILE** > While connected through the SJCAM mobile app, 2 copies of your recording/shots will be saved, one on the camera's MicroSD and one on your mobile phone's storage.

**PowerON Record** > Recording starts immediately when the device is powered on.

**Image Size** > Changes the size of still photos that will be recorded. Of course, the bigger the size the more detailed your pictures are, at the expense of filesize. Available only in Photo modes.



## SETUP SCREEN 6

Setup	
Quality	▼
Sharpness	▼
White Balance	▼



**TIP:** Status lights are easy to read. The front amber status-indicator will blink when recording, steady when on standby.

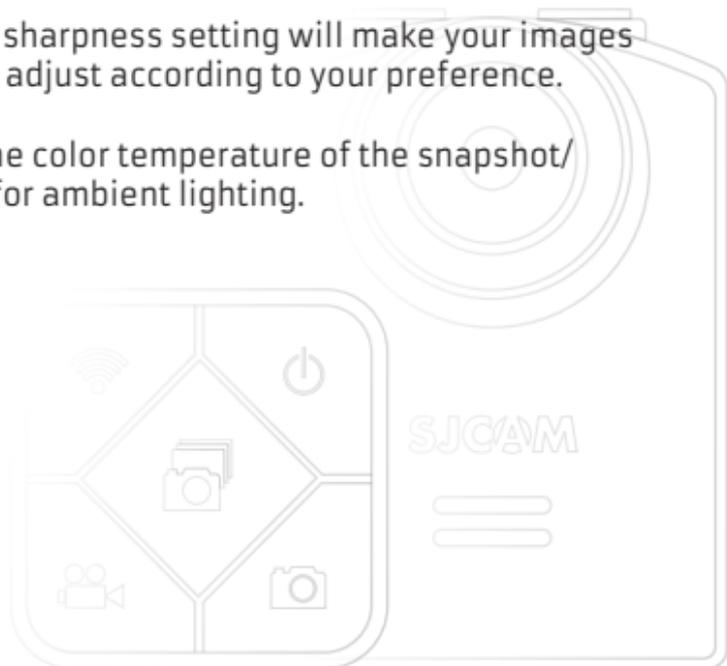


The Blue LED will blink slowly when the Wifi is connected to a device. Blue LED will flash continuously when it is trying to connect.

**QUALITY** Refers to how much compression the output image will have. The higher the setting the bigger the file is, and will contain more detail.

**SHARPNESS** > Changing the sharpness setting will make your images either crisper or smoother, adjust according to your preference.

**WHITE BALANCE** > Adjusts the color temperature of the snapshot/recording to compensate for ambient lighting.



## SETUP SCREEN 7

Setup	
Color	▼
ISO	▼
EV	▼

EV works by controlling how much light is allowed in.

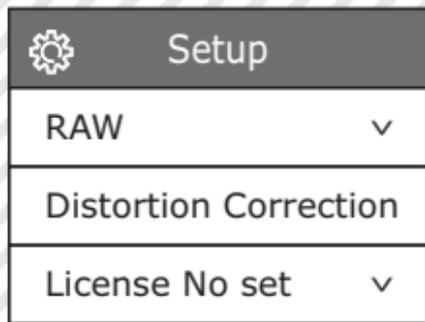


**COLOR** > You are given 5 preset choices: Normal, B&W (Black and White), Retro (aka: "Sepia tone"), Warm (slight reddish hue), and Cool (slight bluish hue).

**ISO** > The image sensor's sensitivity to light. Choose "Auto" on your camera if you are not familiar with this setting. Depending on the lighting conditions, use the lowest ISO whenever possible, as higher settings will introduce more noise while pixel sensitivity also goes up. Adjust depending on your preference.

**EV** > Exposure Value - Changing EV compensates for the amount of light that is allowed in. You can change this value to a lower setting if the scene is too bright, to compensate. Or higher, if it is too dark, but still depends on your desired effect. A higher EV will take longer for a photo to be taken, and will add blur to videos as each frame takes longer to expose.

## SETUP SCREEN 8



A visual explanation of how Distortion Correction works.



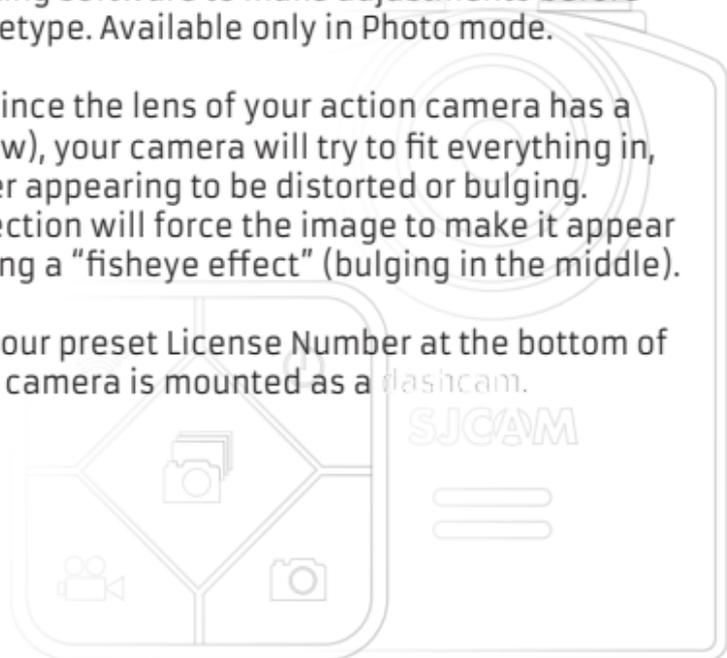
DISTORTION CORRECTION  
ON

DISTORTION CORRECTION  
OFF

**RAW** > When turned on, an uncompressed file separate from the JPG image will be written on the card for the purpose of editing later. Use an external photo editing software to make adjustments before saving to your intended filetype. Available only in Photo mode.

**DISTORTION CORRECTION** > Since the lens of your action camera has a very wide FOV (Field of View), your camera will try to fit everything in, and will result in the center appearing to be distorted or bulging. Turning on Distortion Correction will force the image to make it appear "flat" as compared to having a "fisheye effect" (bulging in the middle).

**LICENSE NO SET** > Displays your preset License Number at the bottom of your video. Use when your camera is mounted as a dashcam.



## SETUP SCREEN 9

Setup	
Date/Time	▼
Auto Power Off	
Keypad Tone	▼

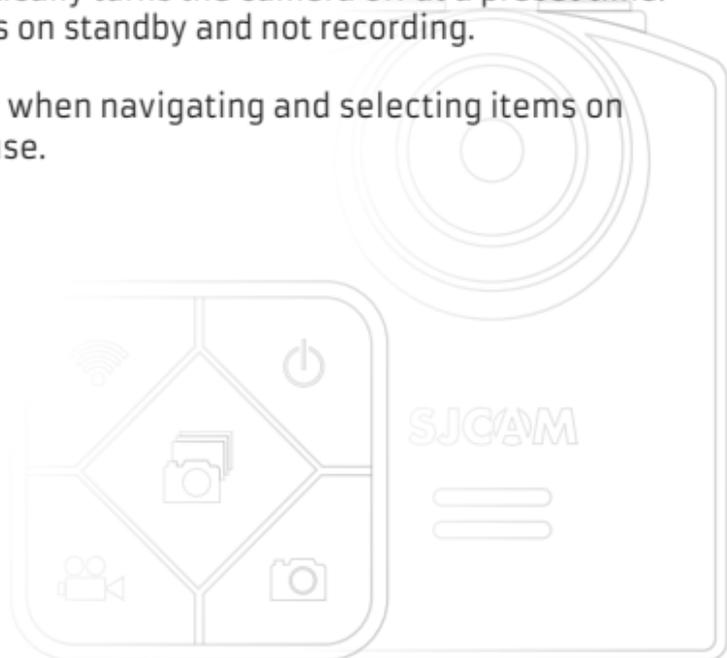


**TIP:** Enable Keypad Tone when using the camera outdoors to get auditory clues if you're shooting or not.

**DATE/TIME** > Make adjustments to the camera's system date and time.

**AUTOPOWER OFF** > Automatically turns the camera off at a preset time. Works only if the camera is on standby and not recording.

**KEYPAD TONE** > Beep sound when navigating and selecting items on camera. Best for outdoor use.



## SETUP SCREEN 10

Setup	
Light Set	▼
Screensavers	▼
Frequency	▼

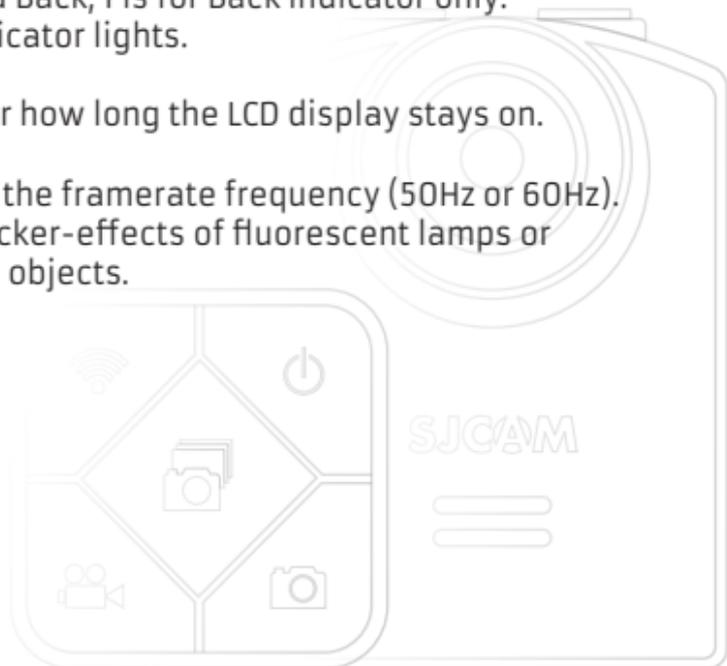


**TIP:** Save battery by using a shorter duration ScreenSaver. The screen will appear blank while recording but you save as much as 20% more battery power.

**LIGHTSET** > To change the number of LED status-indicator lights that are active. OPTIONS: 3 is to activate ALL LIGHTS (Front, Top, and Back indicators), 2 is for Top and Back, 1 is for Back indicator only. Off turns off all status-indicator lights.

**SCREENSAVERS** > Options for how long the LCD display stays on.

**FREQUENCY** > For adjusting the framerate frequency (50Hz or 60Hz). May be used to counter flicker-effects of fluorescent lamps or jello-effect of fast moving objects.



## SETUP SCREEN 11

Setup	
Rotate	▼
LOGO Watermark	▼
Language	▼

**TIP:** When using your camera as a dashcam, use a car charger cable and remove the internal battery to make sure it does not die out while you travel.

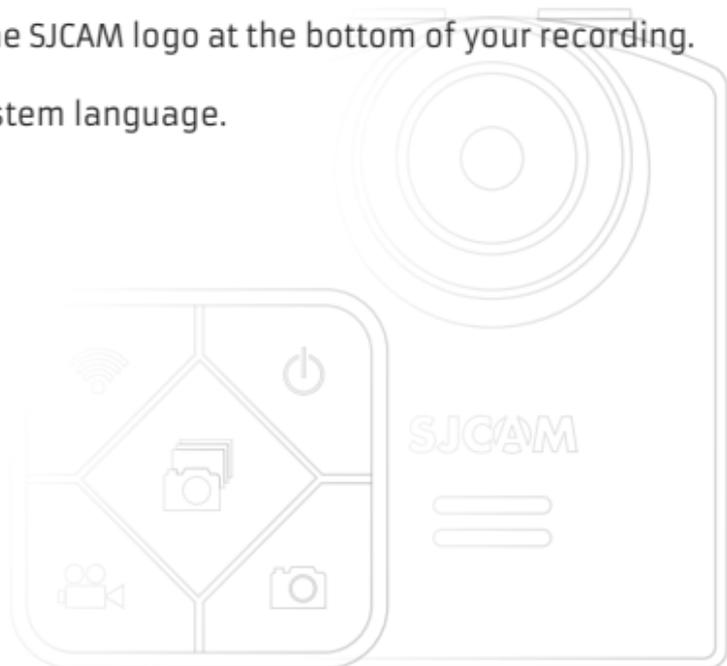


**CAUTION:** Operating your camera while driving a vehicle is potentially dangerous. It is strongly advised to set up your camera before your trip.

**ROTATE** > Flips the recording 180-degrees.  
Turn this on when mounting the camera in an upside-down position.

**LOGO WATERMARK** > Adds the SJCAM logo at the bottom of your recording.

**LANGUAGE** > Options for system language.



## SETUP SCREEN 12

Setup	
WIFI SSID	▼
WIFI Password	▼
Delete	▼

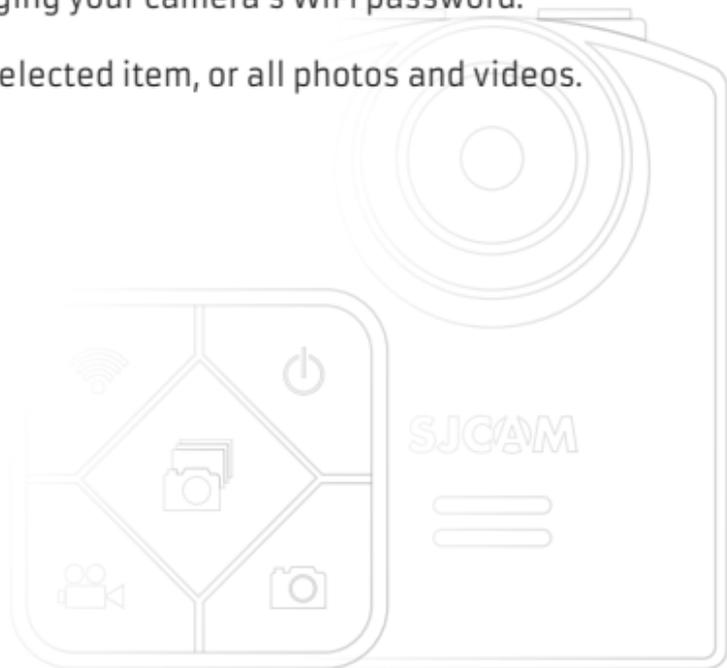


**TIP:** You can also delete items when in Playback mode while an image or video is displayed. Just long-press the Down button, and you will be presented with the delete options.

**WIFI SSID** > For changing the WiFi name of your camera.

**WIFI PASSWORD** > For changing your camera's WiFi password.

**DELETE** > Erases currently selected item, or all photos and videos.



## SETUP SCREEN 14

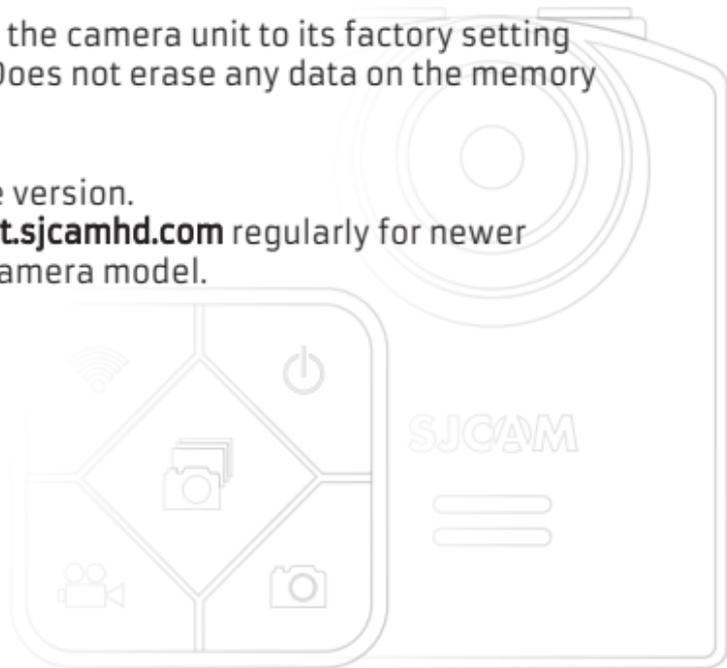
Setup	
Format	▼
Default Setting	
Version	▼

**TIP:** When updating your firmware, keep a backup copy of your current firmware version so that you have something to return to in case anything goes wrong.

**FORMAT** > Completely erases everything on the memory card then sets it up as a new drive (in FAT32 filing system).

**DEFAULT SETTING** > Restores the camera unit to its factory setting including WiFi Password. Does not erase any data on the memory card.

**VERSION** > Firmware update version.  
Please check [www.support.sjcamhd.com](http://www.support.sjcamhd.com) regularly for newer versions specific to your camera model.



# FILE MANAGEMENT

You can transfer files from your camera by using any of these 4 methods.

**1. Via USB cable connected from your camera's microUSB slot to a Windows or Mac computer:**

- a> Connect the USB cable, choose "Mass Storage Device" on your camera.
- b> Your device will show as a drive on your File Manager (Explorer on Windows; Finder in OSX).

**2. Via WIFI through the SJCAM App:**

- a> Connect your camera to your phone: **Device Settings>Wifi>Choose your camera**
- b> Go to the app, tap the Gallery icon, then download the files you wish to transfer, by tapping the Down arrow icon next to each file.

**3. By using a microSD card adaptor:**

- a> Power off your camera and remove the microSD card.
- b> Insert it to a card adaptor and plug it to your computer.
- c> Your card will show as a drive on your File Manager.
- d> When you're done transferring files, right-click the drive > choose "Eject" before removing the card from your computer.

**4. By transferring the microSD card to your smartphone with removable storage:**

- a> Power off your camera and remove the microSD card;
- b> Insert the microSD to your mobile device;  
your microSD card will show up as a drive on your mobile device's file manager;
- c> Transfer the files you choose to your mobile device;
- d> When you're done, "eject" the microSD card by choosing "Unmount"

Optional: Format the microSD card on your camera to remove files added by your mobile device.



# Included Accessories



*More accessories available on the [sjcamhd.com](http://sjcamhd.com) website, sold separately.*



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