

# MOTAO

## SPECIALIZED PRODUCTS

**CV021~CV026**

## **USER MANUAL**



*Full HD Waterproof Motorcycle & Watercraft Action Camera*

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**IMPORTANT!** Never risk your life or the lives of others when making a video. Accidents will happen so be prepared by becoming familiar with your MOTAO camera before using it. Do not try to adjust camera settings while riding your bike under any circumstances. Please read this manual before mounting and using your camera. **Save this User Manual!**

For support and firmware updates visit: [www.motao.com/support](http://www.motao.com/support)

**Inspect Your Camera:** The camera shall be inspected upon receipt and checked for any missing parts per **Complete Parts Listing page 20 (Rear Cover)**.

**Repairs:** All camera repairs shall be made by authorized personnel only and in conformance with the manufacturer's recommendations or the warranty will be void.

**Warranty:** This Camera is covered by a limited **12** month warranty effective receipt date.

For further warranty information visit [www.motao.com/support](http://www.motao.com/support)

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## Main Features

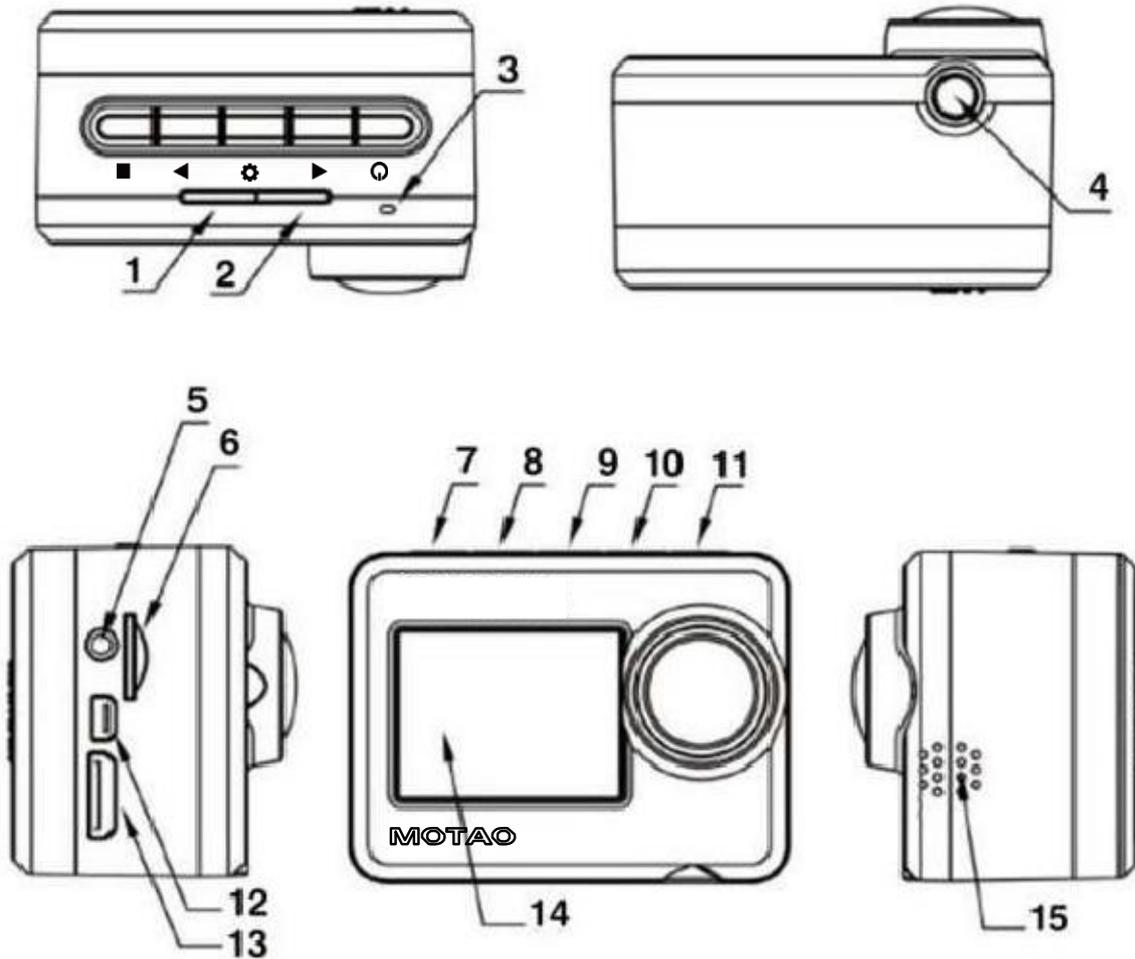
- 480 x 240, 1.5" TFT LCD Screen
- 5.0MP FULL HD CMOS sensor
- 170° Super wide angle FOV (field of view) under 720P, 127 ° under 1080P 720P
- H.264 Compression into MP4 video format
- 30 Meters (100 Feet) Waterproof
- RF wireless remote controller (requires manual power on)
- Support Timing record, Motion detect record, Auto record and Loop record
- Support Timing Capture (Self-timer), Continuous capture
- Zoom focus available under 720P video record and Picture capture mode
- Video resolution Settings:

16: 9 Full HD 1920 x 1080P	30FPS
4: 3 Full HD 1440 x 1080P	30FPS
16: 9 HD 1280 x 720P	60FPS
16: 9 HD 1280 x 720P	30FPS
4: 3 WVGA 848 x 480	60FPS
- Picture resolution Settings:

4000 x 3000	12MP
3200 x 2400	8MP
2592 x 1944	5MP
- Video & Picture playback
- Support 1GB~32GB High speed Micro-SD memory card–  
(The camera does not have built-in memory.)
- High speed USB2.0 interface for Power charge and Data transfer
- HDMI、USB and RCA Cable output optional

***The camera supports Continuous burst, Motion detection and Time Lapse capture.  
For full details on these settings see pages 11 thru 13.***

## Camera Buttons and Ports



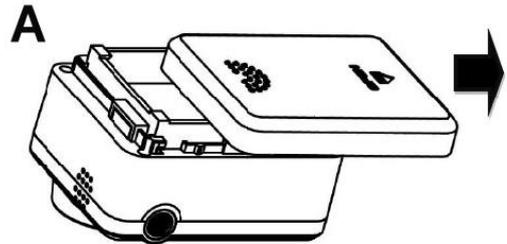
1. Video Record Indicator (red)
2. Power Indicator (red) & Power charge Indicator (green)
3. Microphone (no Icon)
4. Tripod screw hole
5. Audio output
6. TF card slot
7. (■) REC & Confirm button
8. (◀) UP & Zoom+ / Remote Pair
9. (⚙) Menu button
10. (▶) Down & Zoom-
11. (⏻) Power ON & Picture Capture
12. USB Port
13. HDMI Port
14. TFT LCD
15. Speaker

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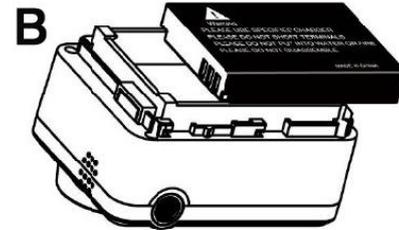
## Battery Installation

Install the battery according to the graphics

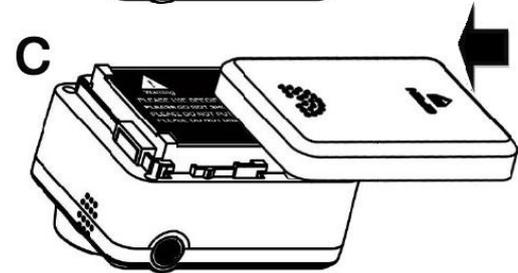
**A** - Open the battery cover



**B** - Install the battery (**Note:** label side face up)



**C** - Close back cover

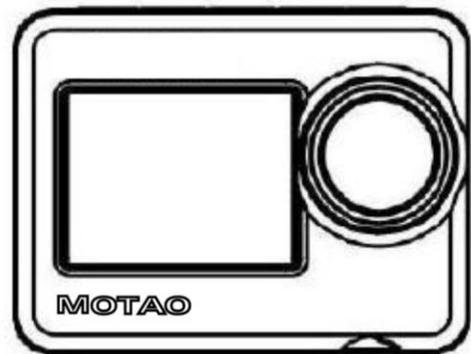


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## Inserting Memory Card

The camera does not have built-in memory. A Micro SD card is required and a class 10 8GB to 32GB is recommended.

Install a Micro SD card according to graphic



After installing the SD card, power on the camera and an SD card icon will appear in the top right corner of the screen – this indicates SD card is correctly installed. If no icon is displayed then an SD card is not installed or the card is invalid.

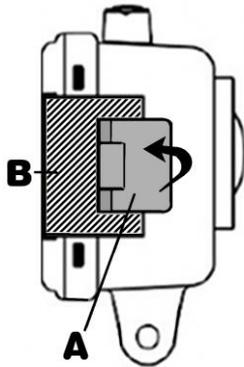
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## Using the Waterproof Housing

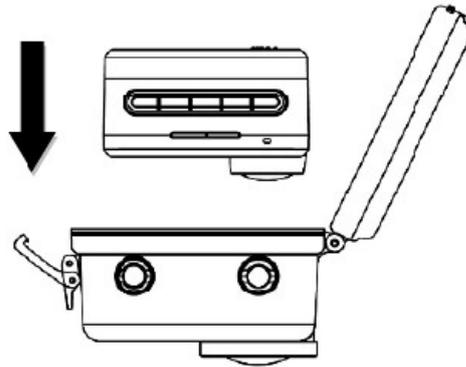
### 1. Opening the Latch

Per arrow in the graphic below, pull latch "A" outward and the clasp "B" will slacken and allow you to pull lock mechanism away from the rear cover.



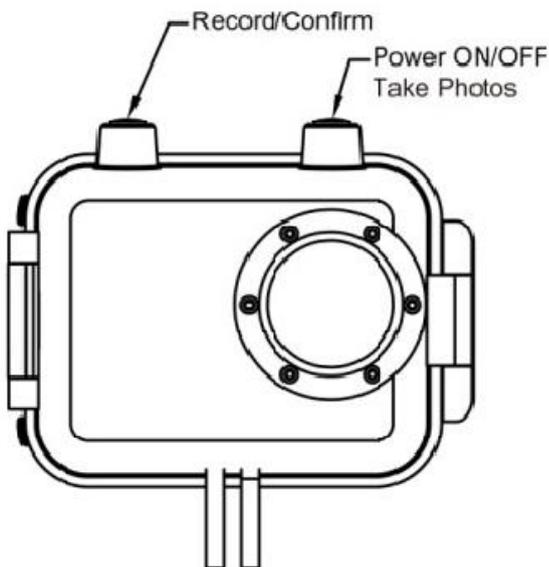
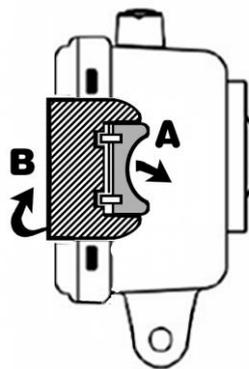
### 2. Insert Camera

Open hinged rear cover and insert camera as shown in the graphic below.



### 3. Close the Cover

Per graphic to the right, First close the clasp "B" and then press inwards the latch "A" to lock tight.



**Two button operation** only when camera is Inside the waterproof housing.

**Note!** The waterproof housing is certified at a maximum depth of 30 Meters (100 feet). Should an area of condensation form on the inside the waterproof housing this will not cause a problem for the cameras safe function.

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## Mounting the Waterproof Housing

To mount, choose the best mount to for the event you are planning, The MOTAO HD camera kit includes the following clips, mounts and bases.

Main clip mount which inserts into one of two base mounts, one for flat surfaces and a curved base with 3M adhesive backing for helmet mounting.

Two tripod mounts are included, one for use with the waterproof housing and the other is used without the housing and mounts directly into the cameras built in tripod socket

Also in the kit are three mounting stem extensions.  
**See page 20 for complete list.**



**Note!** Your camera mounts are rugged but they are plastic and may break under heavy stress and certain rough riding conditions therefore it is recommended that you tie a thin tether line to the camera housing. If the camera should break lose during riding it will remain tethered to the bike. Make sure the tether does not connect to or near moving parts of the motorcycle.

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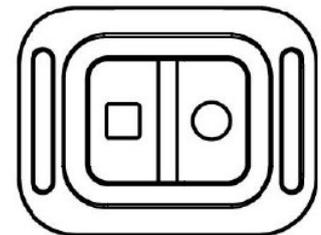
## Remote Controller

### START VIDEO RECORD

Remote to start video record only when Camera is Powered ON.  
Remote will not start record if camera power button is OFF.

### STOP VIDEO RECORD

Remote to stop video record only, will not power OFF camera.  
This allows multiple recording starts and stops.



## PAIRING A REPLACEMENT REMOTE with CAMERA

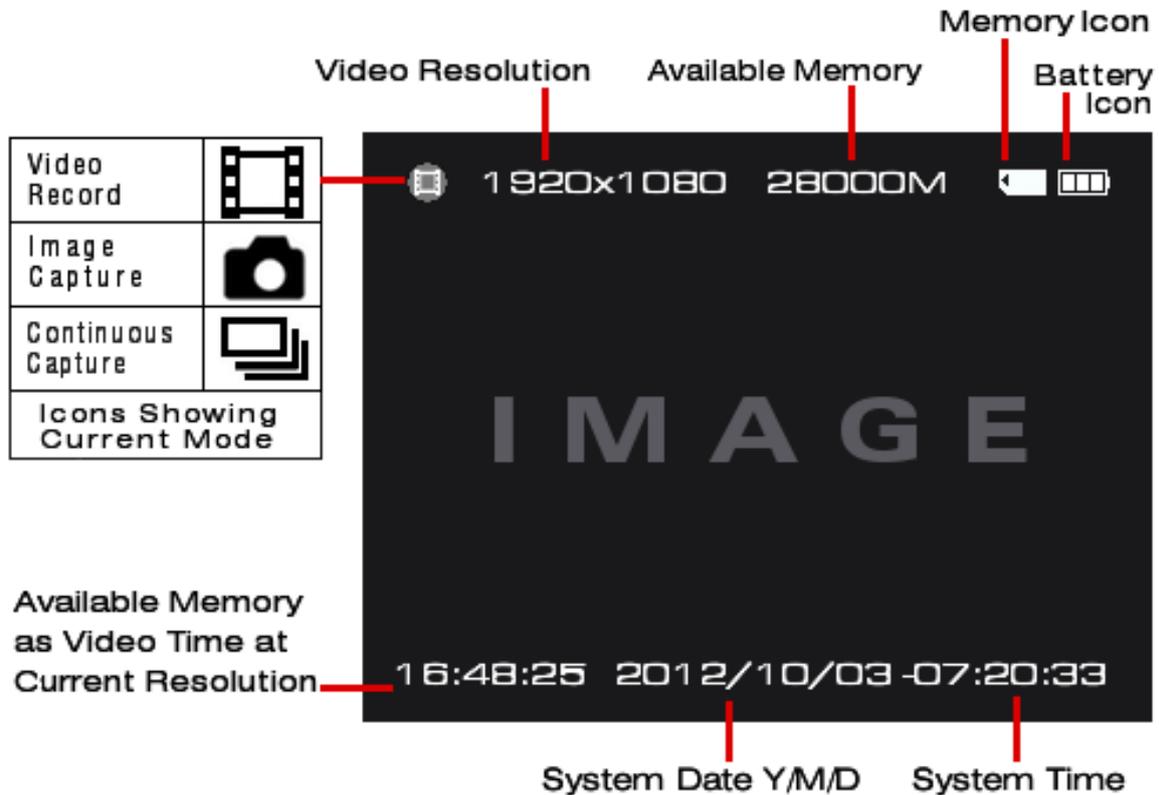
**Note** – The camera and remote have been pre-paired at the factory when manufactured. This feature is only necessary when a new remote control replaces the factory paired remote.

1. Hold down the “◀” button on the camera when in power OFF state. Don’t let go.
2. Then press POWER button to turn ON the camera.
3. When camera has powered on immediately press the  button (Start Video Record) and immediately release the “◀” button.
4. When pairing the screen will go dark during the process. If pairing is a success the camera will power ON automatically. If pairing has failed the camera will power OFF automatically.

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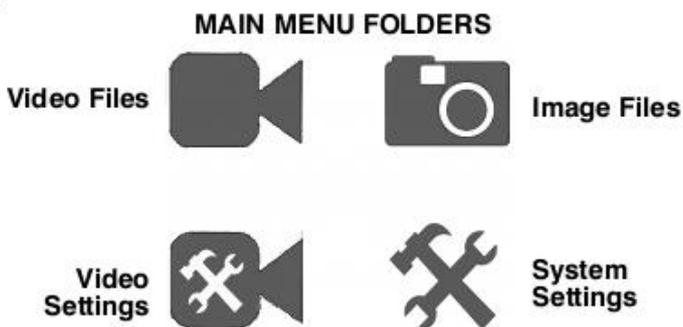
## System Boot Screen

Opening screen Icons and Information which will display along with an image of what the camera lens is pointing at.



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## Main Menu



Pressing the  button opens a directory with four folders. This easy to navigate directory stores all your videos, images and is where settings are changed for the feature you need.

## Navigation

**Scrolling** is the use the “◀ or ▶” buttons on the button bar. Navigating the menus and making settings in this camera will require scrolling. When in a menu, the active folder’s icon will be highlighted with an orange border around it. Additionally the Video and Image folders will also tally the number of files contained in them in the top corner of the folder icon.

## Video Recording

1. Press **⏻** button to turn on the camera.
2. Press **■** button to start the video record, a red icon will flash on the screen to indicate camera is recording.
3. For Zoom, Press "**◀**" or "**▶**" **Scroll** buttons.
4. To stop recording, press **■** again and your video will be saved up to that point.



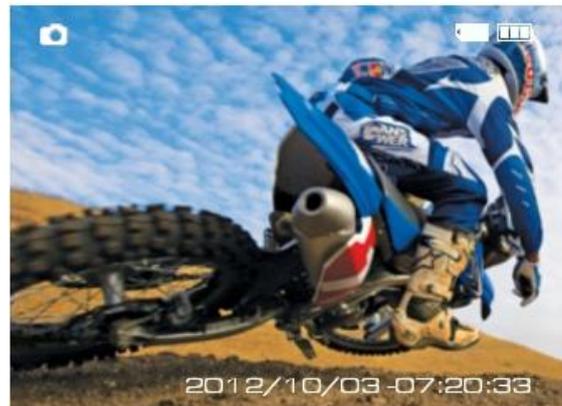
Video Screen

**Note!** Zoom feature not available when camera is inside its waterproof case.

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## Image Capture

1. Press **⏻** button to turn on the camera.
2. Press **⏻** button again while camera is on to take a picture. While in image capture mode a white camera icon will be on the screen. When a picture is taken the icon will flash red then go back to white.
3. When camera Icon is white zoom is possible by pressing the "**◀**" or "**▶**" **Scroll** buttons.



Camera Screen

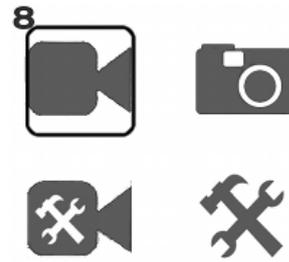
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**IMPORTANT!** Each video and image file is recorded with a default name the camera recognizes. Do not rename images on the Micro SD card as the image name will not be recognized and will not have a thumbnail in the folder. The MOTAO HD Camera can only recognize images with a **CAMY** prefix and videos with a **MOVY** prefix and 4 number suffix. Do not store any images on your MicroSD card from other cameras.

## Video Playback

1. Press  button to enter the main menu.  
Press **Scroll** buttons to choose the **Video Folder**.

In the example Menu screen here the Video Folder is highlighted and the total files in the folder is displayed in the upper left corner. Here it shows 8 video clips.



Main Menu Screen

2. Press  button to enter the folder. Video clip thumbnails will display as per example Thumbnail screen. The active thumbnail will be highlighted with an orange border.
3. Press **Scroll** buttons to cycle through and Stop at the video clip you want to play.



Thumbnail Selection Screen

4. At the highlighted thumbnail, Press  to confirm and the video will fill the screen, immediately press  once more to start video play back.



Video Selection Screen

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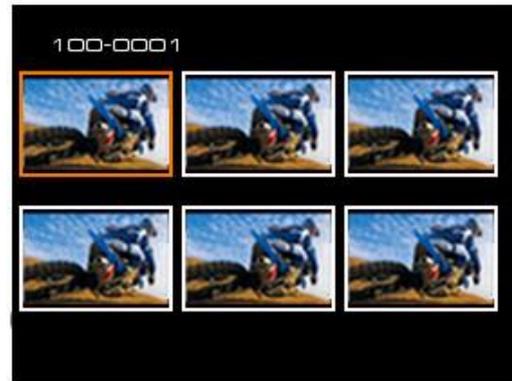
## Browse Images

1. Press  button to enter the main menu.  
Press **Scroll** buttons to choose the **Image Folder**.

The quantity of images in the folder will display on the top corner of the folder icon. If the number of images displayed is 0 (zero), the folder will not open.



2. Press "" button to enter the image folder.  
All the images will be displayed in thumbnail sets of 3 per row'. The active thumbnail will be highlighted with an orange border.
3. Press "" to open the Image.



Thumbnail Image Selection Screen

4. To see previous or next image in the folder press "" or "" button.

To return to thumbnail view Press  and  again to return to Main Menu.

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## Deleting Files

While browsing images, use **Scroll** buttons to choose what you want. When an image has been selected, press and hold  button and the **Delete Option** Menu will display on the screen.

### Settings:

- No** : Cancel current operation and quit.
- Yes** : Confirm current operation and delete the single image.
- ALL** : Confirm deletion of all files in the folder.

Press "" button to confirm deletion or **CANCEL** if No.

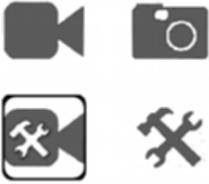
**Note!** Once you delete files from the MicroSD the files are permanently deleted and can't be recovered. So we recommend making a copy with via file transfer to your computer before deleting files directly from camera.

**Deletion via Loop Record** – See page 12.

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## Video Setting



Press button enter the main menu.  
Press “◀” or “▶” buttons to scroll the Video Setting folder.  
Press “■” button to enter.

### VIDEO MODES:

#### Normal REC

Camera will start recording video once the “■” button is pressed. A small red circle start to flash on the screen indicating recording. Also half of the red LED light bar will steady flash. When you are finished, press “■” button again to stop video record and the video clip will automatically be saved. Pressing the “■” button again will start a new video clip.

#### Motion Detect

Camera will start recording video only when motion activates a detector. When the lens detects movement, it begins to record and the camera will not stop recording video until all movement has ceased.

The movement detector will require 10 seconds shut down to reset before it can start movement detection again at each additional restart. The default video record time is 1 minute if the movement was less than 30 seconds. The camera will not stop recording video if movement is constant the camera will record until battery runs out or memory is full and no longer has space.

#### Time REC

Sets a time to start recording video automatically. For this feature you must first set your time Rec settings by pressing “■” to next Video Setting screen, then press **Scroll** button to **Time Rec** and press “■”.

The **Time Rec Settings** menu will have 5 lines of numbers with default numbers or unset in white. A graphic explaining these numbers and what they mean is to the right. Entering dates past or values beyond a maximum set limit will invalidate the setting.

#### TIME RECORD SETTINGS

Year	Month	Day	Hour	Minute	Video length
2013	08	30	11	45	05
2013	09	00	01	30	10
2013	10	03	08	20	05
2013	10	30	10	00	05
2013	12	31	12	59	99

Max Values

To make a time setting use the **Scroll** buttons to add / subtract the number. Press “■” button to set the option desired. After an option is set, Press “▶” to move to next option or to move down to next line.

2013 08 30 11 45 05	Yellow - Highlighted scroll setting
2013 09 00 01 30 10	Red - Active being set/ White not set
2012 10 03 08 20 05	Green - All settings Valid
2013 10 30 10 00 05	Red - Something in this setting is invalid
2013 12 31 12 59 99	White line - Default, no settings made

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## Auto REC

***This feature is for use if camera is used as a “black box” in a vehicle.***

The camera will start recording video automatically after vehicle has been turned on. For this feature to work presets must first be made in “**Auto REC time**” settings menu.

**OFF** : Not activated

**10 Seconds** : Camera will start recording 10 Seconds after starting vehicle.

**20 Seconds** : Camera will start recording 20 Seconds after starting vehicle.

**1 Minute** : Camera will start recording 60 Seconds after starting vehicle.

**Note** : This function is designed for using camera without waterproof, inside a car as a black box. A cigarette lighter power adapter would be required. Only the Motao No.: CV340 cigarette lighter adapter will work with this camera. Other lighter power cords will not work with this camera. Motao No.: CV340 is a special order accessory.

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## Loop Record

The camera will delete the earliest video clip for newest video clip if memory is not enough. Select the “**Loop Setting**” and press “**■**” button to enter the time setting.

**OFF** : Not activated.

**1 Minute**: 1 minute per video clip.

**5 Minutes**: 5 minutes per video clip.

**Note**: Loop record only available under Normal record and Auto REC mode.

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## Video Resolution

Choose suitable resolution for different purpose, lower resolution will save power and memory for longer time record.

Resolution		Frame Rate	Ration
1920x1080	Full HD 1080P	30FPS	16 : 9
1440x1080	Full HD 1080P	30FPS	4 : 3
1280x720	HD 720P	60FPS	16 : 9
1280x720	HD 720P	30FPS	16 : 9
848x480	QVGA	60FPS	4 : 3

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## Record Content

A setting option for “Audio and Video” (video clip with sound) or “Video” (video clip without sound) only. Press “**■**” button to confirm setting and quit.

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## Self-Timer

Press  button to active this feature. This feature is for use with **Time Lapse** video software.

**OFF** : Not activated.

**5 Seconds**: Camera will take pictures every 5 seconds.

**10 Seconds**: Camera will take pictures every 10 seconds.

**1 Minute**: Camera will take pictures every 1 minute.

**Note** : Self-Time feature upon power OFF, will reset to normal capture automatically.

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## Time Stamp

When set at ENABLE, the Date and Time video was taken will display on the video.

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## Photo Size

Set image resolution here. Select the size image you need. Three resolution settings:

4000 x 3000      12MP

3200 x 2400      8MP

2592 x 1944      5MP

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## Continuous Shot

Press  to enter the main menu, use Scroll button to select “Continuous shot” menu, press  to confirm and when in the menu choose the quantity of shots.

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## System Setting



Press  to enter the main menu,  
Press “◀” or “▶” button to System Setting icon (hammer and wrench)  
Press  button to bring up System Settings menu.

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## Language Setting

Select the language and press  button to confirm.

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## Date & Time Setting

### Date Setting:

Press "■" to select the option, Press "■" again to next option select, use **Scroll** buttons to change.



2013 : **Year** option, Red color means active for changing.

10 : **Month** option, use **Scroll** buttons to select, press "■" to confirm.

15 : **Date** option, use **Scroll** buttons to select, press "■" to confirm.

### Time Setting:

Press "■" to select the option, **Hour** will be in red, use **Scroll** buttons to change. Then "■" to confirm switch to **Minute**, use **Scroll** buttons to change and "■" to confirm.

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## Image Flip

Active this function when you need to install the camera at upside down position, to make right video recorded. The recorded image will flip 180°.

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## Display Frequency

Please choose the correct frequency according to your country or area, picture would flash if incorrect frequency set.

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## Auto Power OFF

If you want the camera power off automatically after some time, then activate this function and set a power off time. Camera will power off no matter what state it is in.

Press "■" button to enter active setting will be yellow. **Scroll** to desired setting and confirm by pressing "■".

**OFF** : Not active

**5 Minutes** : Camera will power OFF after 5 minutes.

**10 Minutes** : Camera will power OFF after 10 minutes.

**20 Minutes** : Camera will power OFF after 20 minutes.

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## Auto Screen OFF

For power saving or simply to turn off the screen when recording. Screen will turn off at set time. Press “**■**” button to enter and confirm the setting.

**OFF** : Not active.

**1 Minute** : Camera will turn off the screen.

**5 Minutes** : Camera will turn off the screen.

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## Volume

This option controls sound level of internal speaker, set using **Scroll** buttons.

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## Format

This function is for re-formatting a MicroSD card.

**Note** : All data on memory card will be erased if you use this function. Data from a formatted memory card CAN NOT be recovered.

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## Memory Info

This function shows the installed MicroSD Card memory status.

**Free**: Amount of memory remaining on the card.

**Used**: The amount of memory no longer available.

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## Reset

The system will reset to default factory settings.

**Important Note** : If you have made a FRIMWARE update you must use this feature to reset the system to the new firmware adjustments. (**See page 16**)

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## Version

Displays the version of your camera software. (Model No. – **Version**)

**CV021~CV026**

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## Troubleshooting:

Please visit our customer service page at [www.motao.com/support](http://www.motao.com/support)

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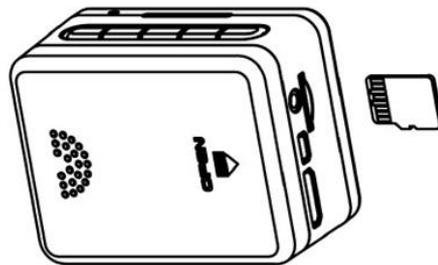
## Firmware Update

The camera may have software updates and you may need to install new firmware: The Camera firmware can be found on this camera's official Customer Service web portal at:

[www.motao.com/support](http://www.motao.com/support)

Follow the instructions at the site to download and install the firmware package: You will need to install the update onto a MicroSD card via PC then transfer the card to your camera.

Install the SD card :



Select "Start" and press "■" button to confirm the update operation, camera will reboot automatically with a black screen when update has completed. If the firmware update or SD card failed the screen will prompt **FAIL**.

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## Connect with Computer

Connect the camera with computer via USB cable, available for data transfer, power charge and firmware update. Power on the camera after connect it with the computer by USB cable, and the screen will display "USB connected" like graphic below, means successfully connected.



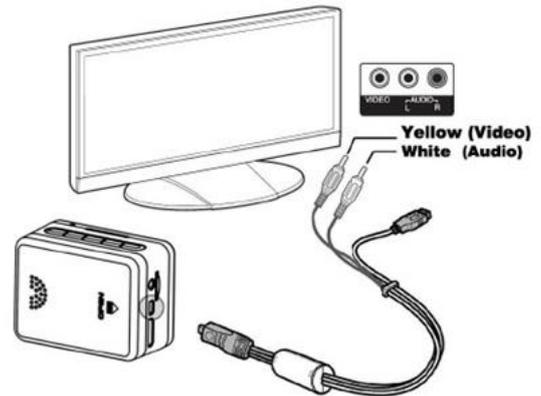
**Important Note:** When connected to a PC via USB all features **will not work** directly from camera, such as Record, Playback and Browse. Charging the battery will occur as well as data transfer via the connecting computer only.

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## Connect to Television

### Via USB-RCA cable connect with TV (output)

Find out the USB-RCA cable in standard accessories, USB side insert to camera, RCA side insert to TV (Yellow for Video, White for Audio)

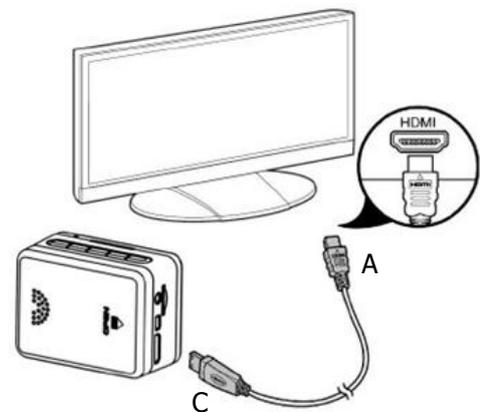


### Via HDMI cable connect with TV (output)

This cable is not included in standard accessories.

Please insert the **A** type connector to the TV, insert **C** type connector to camera

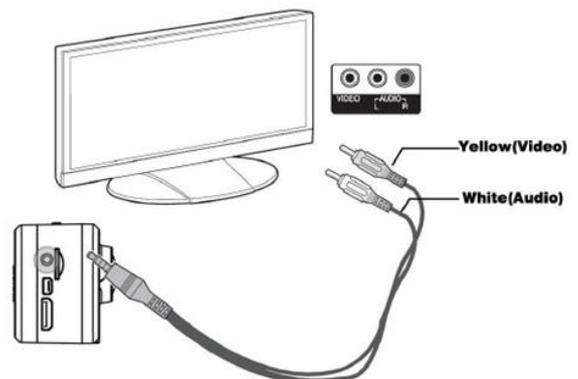
**Note** : The video that output to TV is 1080P resolution when playing back video clip, real-time output display is 480i only.



### 2.5mm - RCA cable connect with TV (output)

This cable is not included in standard accessories.

Start playing back video clip or browse pictures.



- Turn the TV to AV or HDMI input channel, power on the camera
- Press  button to enter main menu, press "◀" and "▶" to select video or picture folder, press "■" button to enter
- Use "◀" and "▶" button to select the file to playing, press "■" to confirm, press again to play.

**Note:** Real-time output resolution to TV is 480i.

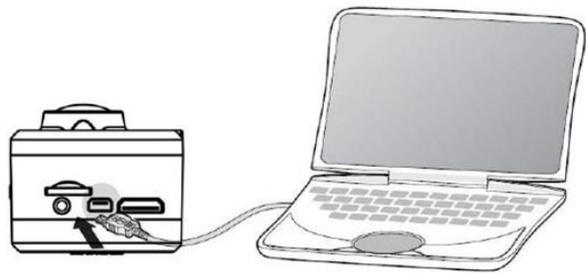
## Battery Charging

Install the battery per instructions on page 4, then select the method of charging below.

### Charge by computer

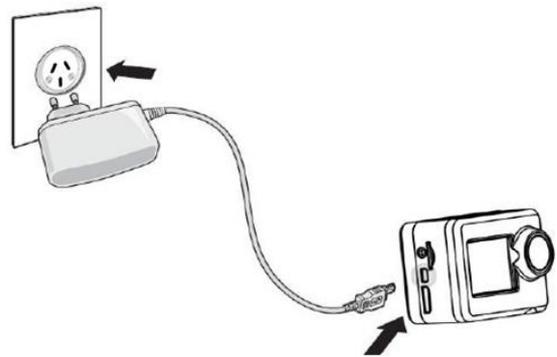
The green charging indicator will turn on, indicator will turn off after full charged.

**Note:** Power charge by computer, please make sure the camera is POWER OFF state.



### Charge by Wall charger

The MOTAO camera includes a wall socket direct charger made specifically for the camera. It plugs into the cameras mini USB port.



### Charging and Battery Tips:

1. Avoid completely draining of power before recharging.
2. To extend battery life, battery should be fully charged before it is used for the first time.
3. When storing the camera for a long period, please remove the battery and store it separately.

## Charging Specifics

Full charge time	Standby time	Video Record Time
3.5 Hours in Power ON state	Approximately: 3.5 Hours	Approximately : 110 Minutes (1080p)
2 Hours in Power OFF state		

## Battery Icon instruction

	>75% electric quantity		>35% electric quantity
	>10% electric quantity		<10% electric quantity

## Specifications

		Item	Spec	Remark		
<b>Basic Spec</b>			Built in memory	No		
			TF Card	1-32 GB	Support SDHC	
	LCD			Size	1.5 inch	
				Resolution	480 x 240	
	Sensor			Size	1/2.5 inch	CMOS
				Image Pixel	2592H x 1944V	
	Video			Output Interface	HDMI/USB/RCA	
	Audio			MIC	Built in	
				Output Interface	HDMI/USB/RCA	
				Speaker	Built in	
	PC Interface			USB	USB 2.0	High Speed
Power			Battery	3.7[V], 800[mAh]	Li-ion Battery	
			DC Charger	DC 5V, 1200mA		
<b>Main Unit Spec</b>			Main Unit Dimension	58.6x31.2x44.8mm		
			Weight	85g	With Battery	
			Waterproof Housing Dimension	75.3x37.9x58.5mm		
<b>Other Function</b>			Motion Detection	YES		
			Timing Record	YES		
			Auto Record	YES		
			Loop Record	YES		
			Continuous Capture	YES		
			Self-Timer	YES		
			Zoom Focus	YES		
			Time Stamp	YES		
			Image Flip	YES	180° Upright	
			Video Quality Option	YES		
			Support Record Under Screen Off	YES		
		File Protection While Low Power	YES			

		Item	Spec	Remark		
<b>Record Spec</b>			Auto Power OFF Option	YES	5, 10, 20 Minutes	
	Video Record	Optional			FULL HD 1920 x 1080 30FS	
					FULL HD 1440 x 1080 30FS	
					FULL HD 1280 x 720 60FS	
					FULL HD 1280 x 720 30FS	
					QVGA 848 x 480 60 FPS	
	Capture	Optional			4000 x 3000 12MP	
					3200 x 2400 8MP	
					2592 x 1944 5MP	
			Sound Record	NO		
		Slide Playback	NO			
<b>Play Back</b>			Thumbnail Browse	YES	2 x 3 Matrix	
	Video	Support			Full HD 1920 x 1080	HD 1280 x 720
					Full HD 1440 x 1080	WVGA: 848 X 480
					HD 1280 x 720	
				Frame Rates	30 FPS	60 FPS
				File Format	FULL HD MP4 H.264/MPEG4	
		Playing Speed	Optional	X1, X2, X4, X8		

# Parts Listing



## MOTAO FULL HD CAMERA KIT

- Waterproof Housing
- Remote Control
- HD Action Camera
- Lens Protector
- Li-Ion Batteries x 2
- Allen Wrench
- Wall Power Charger
- Handlebar Mount
- USB Power & AV Cable
- Offset Clip Mount
- Clip Mount
- Adhesive Flat Clip Base
- Helmet Curved Adhesive Clip Base
- Right Angle Stem Mount
- Straight Stem Mount
- Tripod Top Mount
- Tripod Attachment
- Right Angle Long Stem Mount
- Right Angle Stem Mount
- Long Knob x 2
- Short Knob x 2