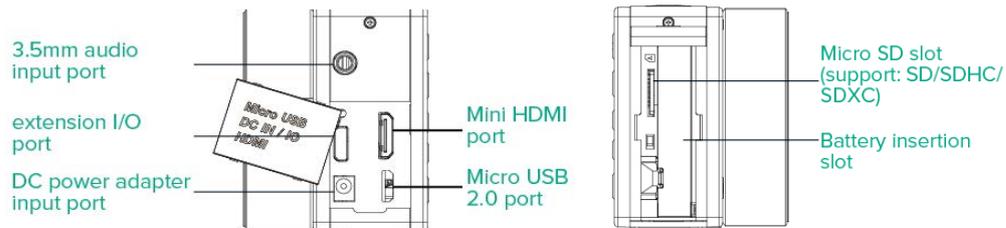
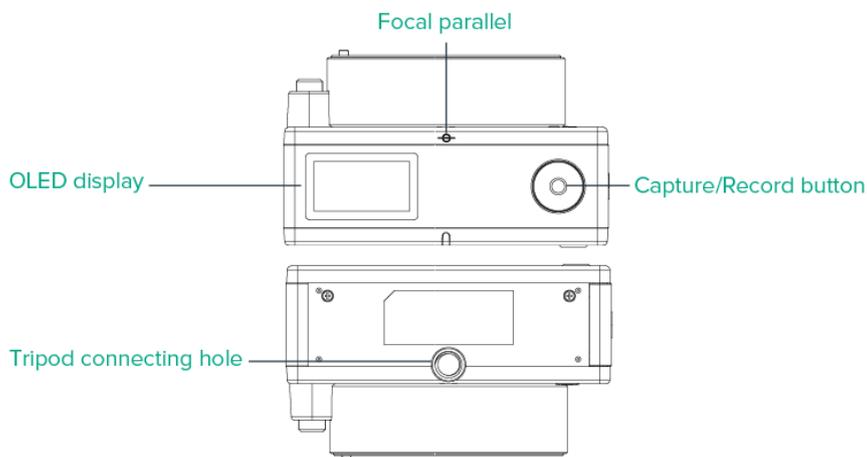
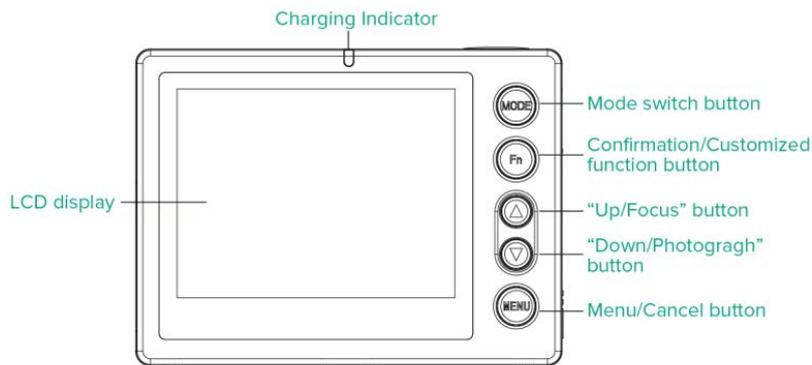
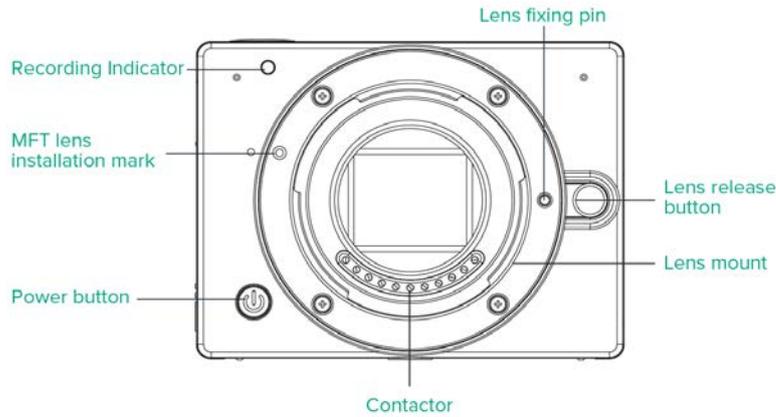




# Z CAM™ E1

**User Manual v1 (Draft)**

# 1. CAMERA INTRODUCTION



## 2. LED INDICATOR STATUS

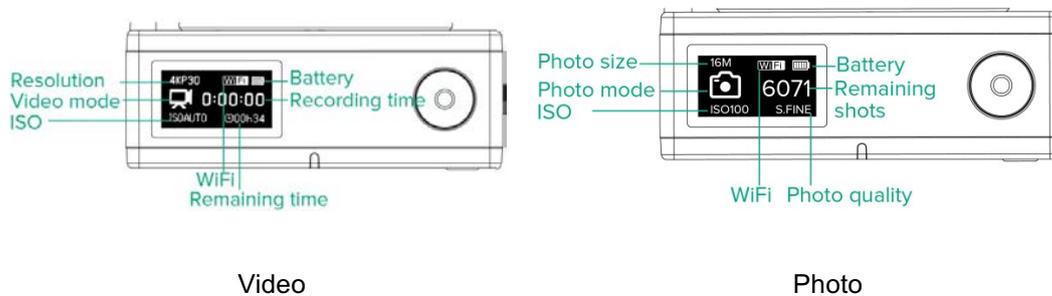
### Charging indicator

- **Red:** When the camera is charging
- **Flashing Green:** When the camera is recording
- **Flashing Red & Green alternately:** When the camera is recording and charging at the same time

### Recording indicator

- **Flashing Red:** When the camera is recording

## 3. OLED DISPLAY



## 4. LIST OF LENS SUPPORTED (for reference only)

LUMIX G 14mm f/2.5

LUMIX G VARIO 14-140mm f/4.0-5.8

LUMIX G VARIO 14-140mm f/3.5-5.6

LUMIX G VARIO 14-45mm F/3.5-5.6

LUMIX G VARIO 45-150mm F4.0-5.6

LUMIX G 20mm f/1.7 II

LUMIX G VARIO 45-200mm f/4.0-5.6

LUMIX G Macro 30mm f/2.8

LUMIX G VARIO 35-100mm f/4.0-5.6

LUMIX G X Vario 14-42mm f/3.5-5.6

OLYMPUS M.Zuiko 17mm f/1.8

OLYMPUS M.Zuiko 25mm f/1.8

OLYMPUS M.Zuiko 17mm f/2.8

OLYMPUS M.Zuiko 14-42mm f/3.5-5.6

OLYMPUS M.Zuiko 60mm f/2.8 Macro Power O.I.S. PZ Lens H-PS14042

OLYMPUS M.Zuiko 12mm f/2.0

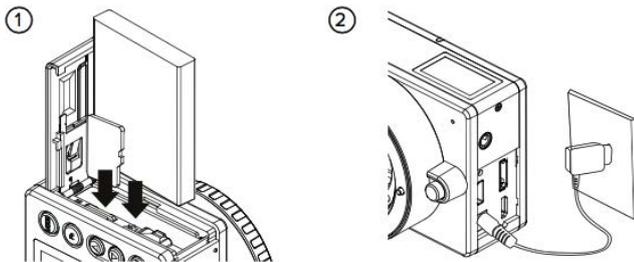
OLYMPUS M.Zuiko 9-18mm f/4.0-5.6  
OLYMPUS M.ZUiko 12-40mm f/2.8  
LEICA DG SUMMILUX 15mm f/1.7  
LEICA DG SUMMILUX 25mm f/1.4  
LEICA DG NOCTICRON 42.5mm f/1.2

## 5. PREPARATION

### 5.1. Install Battery & Memory Card

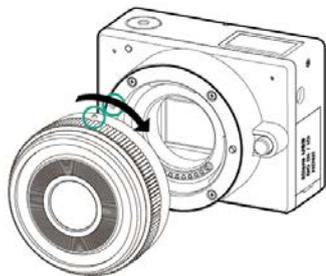
- 1) Open the cover of **BATTERY & Micro SD**.
- 2) Insert the battery and Micro SD card with right direction, as indicated by the card slot and the battery.
- 3) Charge the battery with charger.

**The charge Indicator turns RED when it's charging, and it will turn off when battery is full.**



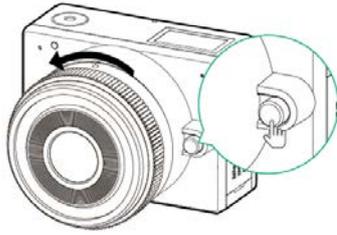
### 5.2. Install Lens

- 1) Take off the lens back cover and the cover on the camera
- 2) Mount the lens: Align the red dots on the lens and camera body, turn the lens in the direction of clockwise until it clicks into place.



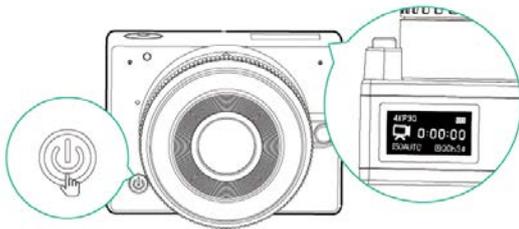
### 5.3. Take Off or Change Lens

- 1) Press down the **Lens Release** button.
- 2) Rotate the lens in the direction of counter-clockwise direction and take off the lens.
- 3) Put on the cover for the camera or another lens.



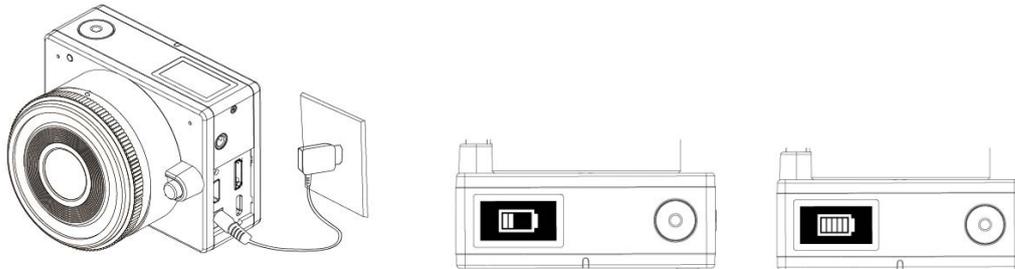
#### 5.4. Power On the Camera

Long press on **Power** button until OLED display shows camera status, then the camera is powered on.



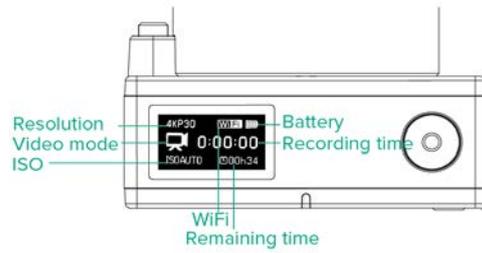
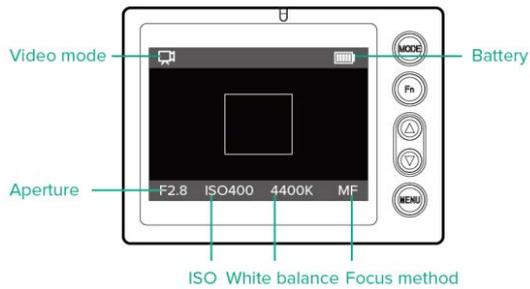
#### 5.5. Charging

Plug the charger (DC end) to the camera and it will be charged if there is battery in the camera. There will be a charging indication on the OLED display and show the battery full icon when it's fully charged.



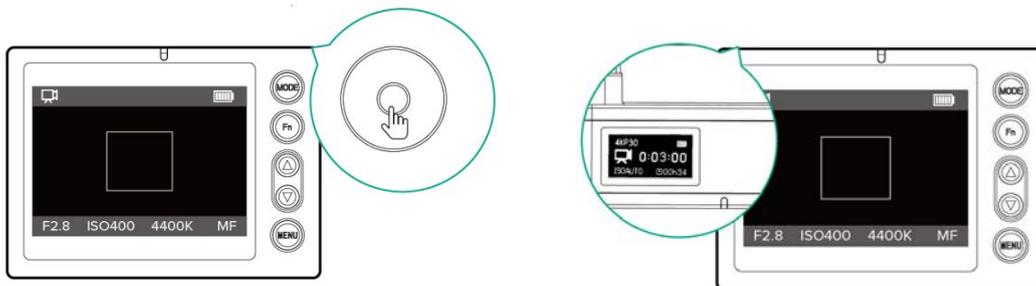
### 6. VIDEO

Please note that **Video** mode is the default mode after the camera is powered on. If it's not in the video mode, press **MODE** button to switch to video mode 



## 6.1. Start / Stop Recording

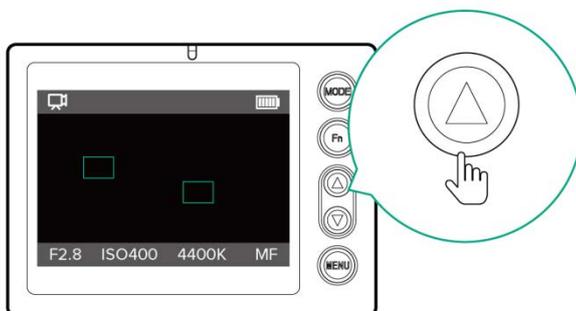
- 1) Press the **Record** button to start recording. Time of recording will be indicated on both displays.
  - \* Please note that the Recording Indicator flashes RED, and the Charging Indicator flashes GREEN while recording. If it's charging at the same time, the Charging Indicator will flash between GREEN & RED.
- 2) While it's recording, press the **Record** button again to stop recording.



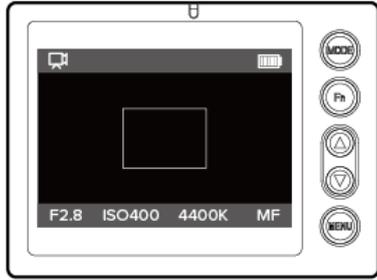
## 6.2. Focusing

Please refer to **Chapter 7. CAMERA SETTINGS** to set the camera in AF/MF and select proper mode if in AF. Please note that you can only change the **Focusing method** and **Focusing mode** (in AF) before recording.

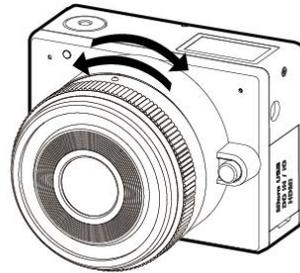
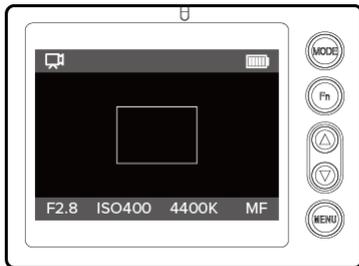
- 1) In **AF & "Normal"** mode, the focusing area will be selected automatically by the camera, press **Up** button to let the camera do focusing.



- 2) In **AF & "Flexible Zone"** mode, there will be a focus area frame on the screen, you can move the focus area with **4.3 Quick Settings** (select **Focus area** and you can move the focus area by **Up** or **Down** button), then press **Up** button to let the camera do focusing.



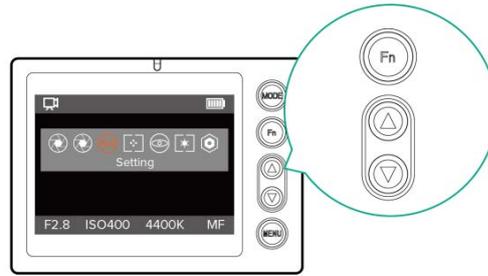
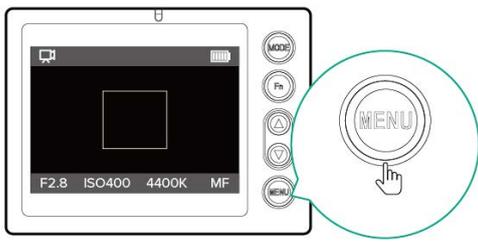
- 3) In **MF** mode, there will be a focus area frame on the screen, you can move the focus area as the same way in **AF & Flexible Zone** mode, then adjust the focus manually on the lens. The display will zoom in to the focus area.



\* Please note that you can still adjust the focus manually in AF mode with MF assistant, please refer to Quick Settings (4.3).

### 6.3. Quick Settings

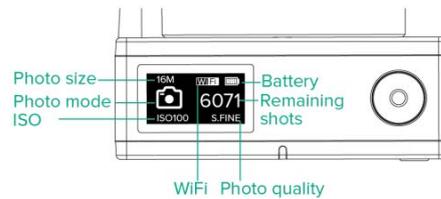
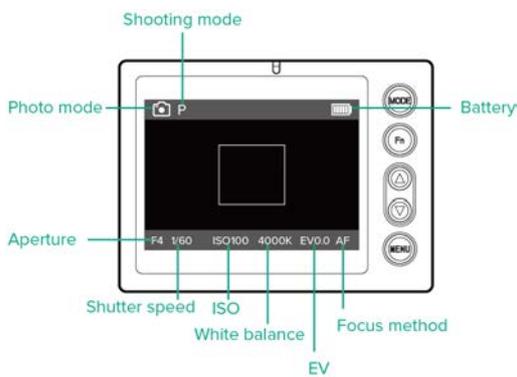
- 1) Press the **MENU** button and there will be a pop-up menu on the screen with following options (up to 7 items). Please note that **MF assistant** and **Setting** will not be available while the camera is recording.
  - **Aperture:** The adjustment range depends on the aperture of lens.
  - **Shutter speed: Auto, Manual (1/24 ~1/8000).**
  - **ISO: Auto, Manual (100 ~ 102400).**
  - **Focus area:** This setting will not be available when the **Focus method** is **AF** and **AF mode** is **Normal**.
  - **MF assistant:** The camera will zoom in to the focus area when it's activated.
  - **White balance:** This setting will not be available when the **White balance** is set to **Auto**.
  - **Setting:** it will come to the Camera Settings, please refer to **7. CAMERA SETTINGS** for more detail.
- 2) Select the setting you want by pressing **Up** or **Down** button, and press **Fn** button to come into this setting, and you can change the parameters by pressing **Up** or **Down** button.
- 3) Press **Fn** button to confirm the change or press **MENU** button to return.



\* Please note that setting changes while recording will affect the video which is being recorded.

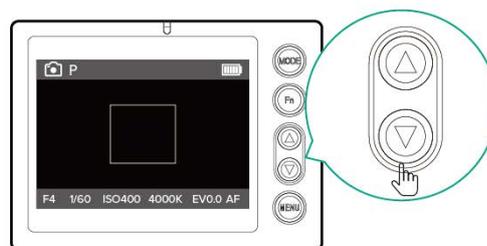
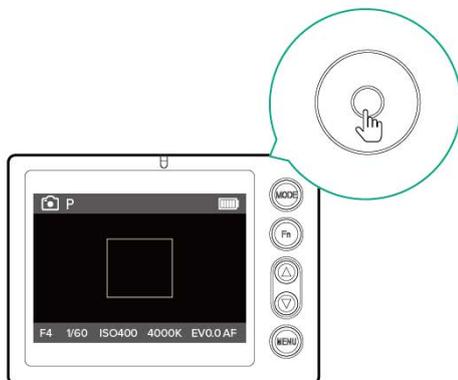
## 7. PHOTO

Press the **MODE** button to switch to **Photo mode** .



### 7.1. Photo Capture

- 1) One step capture: press the **Capture** button to capture a photo. If it's in AF mode, the camera will do focusing before capture the photo.
- 2) Two steps capture (only in AF mode): press the **Up** button to do focusing first, then press **Down** button to capture the photo.

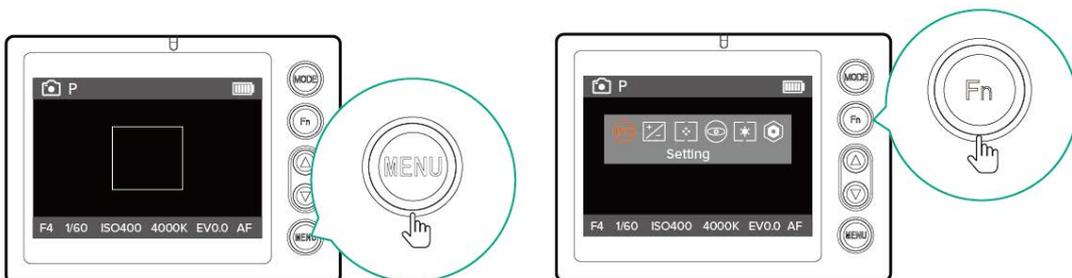


## 7.2. Focusing

Please refer to **4.2 Focusing**, it's the same way to do focusing in **Photo Mode** as in **Video Mode**.

## 7.3. Quick Settings

- 1) Press the **MENU** button and there will be a pop-up menu on the screen with following options (up to 7 items).
  - **Aperture:** This setting will be available when the **Shooting mode** is set to **Aperture priority** or **Manual mode**, and the adjustment range depends on the aperture of lens.
  - **Shutter speed: 8" ~ 1/8000.** This setting will be available when the **Shooting mode** is set to **Shutter priority** or **Manual mode**,
  - **ISO: Auto, Manual (100 ~ 102400).**
  - **EV:** This setting will be available when the **Shooting mode** is set to **Program AE**.
  - **Focus area:** This setting will be available when the **Focus method** is set to **MF**, or set to **AF** with **AF mode** in **Flexible zone**.
  - **MF assistant:** The camera will zoom in to the focus area when it's activated.
  - **White balance:** This setting will not be available when the **White balance** is set to **Auto**.
  - **Setting:** it will come to the Camera Settings, please refer to **7. CAMERA SETTINGS** for more detail.
- 2) Select the setting you want by pressing **Up** or **Down** button, and press **Fn** button to come into this setting, and you can change the parameters by pressing **Up** or **Down** button.
- 3) Press **Fn** button to confirm the change or press **MENU** button to return.

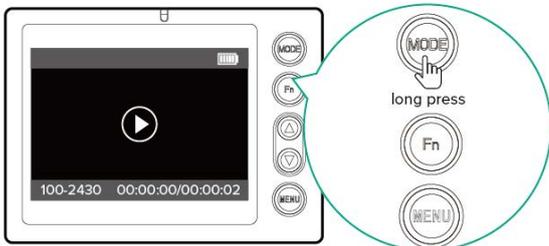


## 8. PLAYBACK & DELETE

Long press the **MODE** button to switch to **Playback** mode

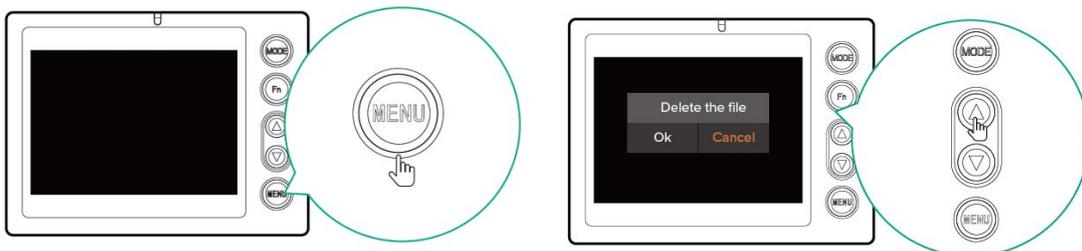
### 8.1. Playback

- 1) Select the file by pressing **Up** and **Down** button, there will be a **Play** icon  if it's a video file.
- 2) If it's a video, press **Fn** button to play the video.
- 3) While playing a video, press **Fn** button to pause, and press **MENU** button to stop.



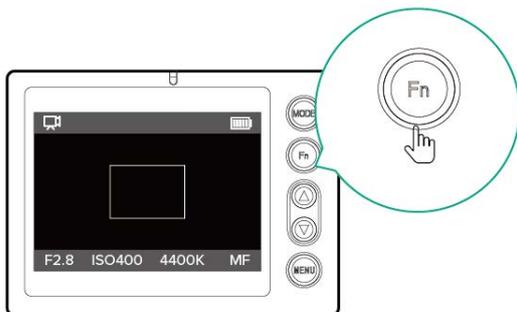
## 8.2. File Delete

- 1) Select a photo or a video (when it's stopped), press **MENU** button and there will be a pop-up window asking "Delete the file?"
- 2) Press **Up** and **Down** button to select "Ok" or "Cancel"
- 3) Press **Fn** button when "Ok" is selected to delete the file
- 4) Press **Fn** button when "Cancel" is selected or press **MENU** button to cancel the delete.



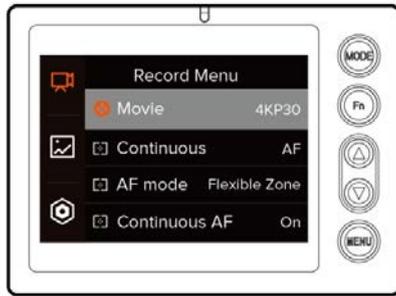
## 9. CAMERA SETTINGS

While in **Video** or **Photo** mode, press **Fn** button will come into **Camera Settings**. There are 3 list of settings: **Record Menu** (Video mode) / **Capture Menu** (Photo mode), **Image Menu** (for both) and **Setup Menu** (for both).



In the **Camera Settings**, press **Fn** to come into next level or confirm, press **Up** or **Down** to select, and press **MENU** to return or cancel.

## 9.1. Record Menu (Video mode)



**Movie:** Resolution and frame rate of video for recording. Please note that the frame rates in **NTSC** video system are 60fps/30fps/24fps, and the ones in **PAL** video system are 50fps/25fps. **Video system** can be set in **8.4 Setup Menu**.

### NTSC Video system

Option	Resolution & Frame rate
4KP30 / P24	3840x2160 @30fps / @24fps
4096P24	4096x2160 @24fps
2160P30 / P24 (4:3)	2880x2160 @30fps / @24fps
1920P30 / P24 (1:1)	1920x1920 @30fps / @24fps
1440P30 / P24 (4:3)	1920x1440 @30fps / @24fps
1080P60 / P30 / P24	1920x1080 @60fps / @30fps / @24fps
720P240 / P120 / P60	1280x720 @240fps / @120fps / @60fps
960P120 (4:3)	1280x960 @120fps
SVGAP120	800x600 @120fps
WVGAP30	800x480 @30fps
384P240	512x384 @240fps
1728P30 (4:3)	2304x1728 @30fps
1728P30 (1:1)	1728x1728 @30fps

### PAL Video system

Option	Resolution & Frame rate
4KP25	3840x2160 @25fps
2160P25 (4:3)	2880x2160 @25fps
1920P25 (1:1)	1920x1920 @25fps
1440P254 (4:3)	1920x1440 @25fps
1080P50 / P25	1920x1080 @50fps / @25fps
720P50	1280x720 @50fps
WVGAP25	800x480 @25fps

- **Focus Method:** **AF** (Auto Focus) or **MF** (Manual Focus).
- **AF mode:** It sets the mode of auto focusing
  - **Normal:** Focus area will be selected automatically by the camera.

- **Flexible Zone:** Focus area can be selected flexibly by user. Please refer to **4.3 Quick Settings** for detail.
- **Continuous AF: On / Off.** To enable or disable the Continuous AF (CAF) function. When it's enabled, the camera will continuously adjust the focus in a specified range (CAF range) as to make the object clear.
- **CAF range: Far / Near / Normal.** When CAF is enabled, this will set the rang (distance) of focusing area. This will be disabled if **Continuous AF** is set to **Off**.
- **CAF sensitivity: High / Middle / Low.** When CAF is enabled, this will set the sensitivity of focusing when the object is moved. This setting will be disable if **Continuous AF** is set to **Off**.
- **Split duration:** It sets the length of video time which will automatically split by the camera while recording. When the SD card is formatted in FAT, the duration is **5min** only, and wen the format is exFAT, the duration can be set to **5min / 10min / 20min/ 30min**.
- **Noise reduction:** It sets the level of noise reduction when the camera is recording in low light environment, with options of **Weak, Normal & Strong**.
- **Rotation:** When the camera is placed upside down while recording, set it to **Upside Down** will get the video in correction direction.

## 9.2. Capture Menu (Photo mode)

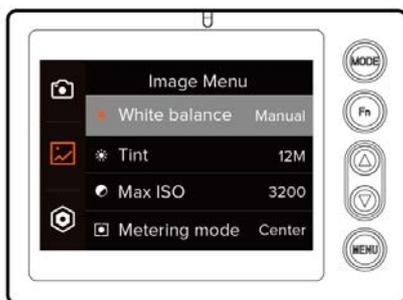


- **Shooting mode:** It sets the mode of shooting with options as below:
  - **Program AE (P):** The camera will automatically set the aperture and shutter speed as to get a good result as programmed.
  - **Aperture priority (A):** User can set the Aperture manually, and the camera will set the shutter speed accordingly.
  - **Shutter priority (S):** User can set the Shutter speed manually, and the camera will set the Aperture accordingly.
  - **Manual mode (M):** User can set both Aperture and Shutter speed manually.
- **Photo size:** It sets the resolution of photo while shooting, with **16M, 12M, 8M, 5M, 3M** as options. Please note that all the resolutions are in 4:3 ratio.
- **Photo quality:** it sets the quality of photo with **Basic, Fine, S.Fine** (Supe Fine) for JPEG only, and a option of **JPEG+DNG** (RAW) which will record both at the same

time.

- **Drive mode:** It sets how the camera will drive the shooting with options as below:
  - **Single:** The camera will capture 1 photo when the **Shutter** button is pressed once.
  - **Burst shooting:** The camera will continuously capture photos when the **Shutter** button is pressed down. Speed of burst shooting (photos per second) can be set in **Burst speed** below.
  - **Time lapse:** The camera will continuous capture photos with a set time gap and times when the **Shutter** button is pressed. Parameters can be set in **Time lapse** below.
  - **Self-timer:** The camera will count down the set seconds (3 or 10) before capturing 1 photo when the **Shutter** button is pressed.
- **Focus method:** **AF** (Auto Focus) or **MF** (Manual Focus).
- **AF mode:** Same as the **AF mode** in **7.1 Record Menu**.
- **Focus area:** It set the focus area to **Normal** or **Small**.
- **Burst speed:** It sets the speed of burst shooting, with options as below. Please note that this setting will only be available when the **Drive mode** is set to **Burst shooting**.
  - **L:** lowest speed with 3 photos per second
  - **L1:** low speed with 5 photos per second
  - **M:** middle speed with 7 photos per second
  - **H:** lowest speed with 15 photos per second
- **Time lapse:** It sets the parameters of time lapse, with time gap (min: sec) and times. Please note that this setting will only be available when the **Drive mode** is set to **Time lapse**.
- **Max exposure time:** This is set to auto by default and can not be changed
- **Distortion correction:** It will enable (**On**) / disable (**Off**) the distortion correction feature.
- **Rotation:** Same as Rotation in **7.1 Record Menu**.

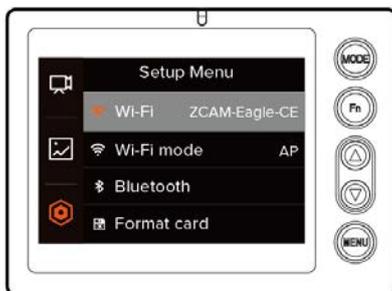
### 9.3. Image Menu



- **White balance:** Auto / Manual, it will activate the **White balance** in Quick Settings (4.3 & 5.3) when it's set to Manual.

- **Tint: -100 ~ 100**, It will adjust the tint of color for photo capture.
- **Max ISO: 100~6400**, this will be enabled when the ISO is set to Auto (5.3 Quick Settings or 6.3 Quick Settings).
- **Metering mode: Center / Average / Spot**
- **Brightness: 0~100**, default is 50.
- **Sharpness: Weak / Normal / Strong.**
- **Saturation: 0~100**, default is 25.
- **Contrast: 0~100**, default is 25.
- **LUT: sRGB / Z-LOG**. Z-LOG is a proprietary gamma setting from Z CAM for professionals that require more room for color grading.
- **Vignette correction: On / Off**

## 9.4. Setup Menu



- **Wi-Fi: On / Off**, Wi-Fi ID will show in this setting when it's set **On**.
- **Wi-Fi mode: AP / STA**, default is AP mode, and STA mode is not activated.
- **Bluetooth**: there are following sub-items to set in detail
  - **Advertising: On / Off**
  - **Status: Connected / Disconnected**, this shows the status of Bluetooth connection and can not be modified manually.
  - **Passcode**: This code is for the device to pair with the camera when it's connected for the first time.
  - **Name**: It's the Bluetooth name of this camera.
  - **Version**: Version number of Bluetooth.
- **Format card: FAT32 / exFAT**, this is to format the Micro SD card with the selected format, and the format will affect the video **Split duration** in Video mode (**8.1 Record Menu**). Please note that **all the files in the card will be deleted** after it's formatted.
- **File numbering**: Continuous / Auto reset.
- **LCD brightness: 1~10**, default is 10.
- **Clear settings**: Clear all the settings and set the camera back to the original status from the factory.
- **Flicker reduction: 60Hz / 50Hz**, it's set to reduce the flicker of lights caused by the alternating current, which should be set to the local frequency of alternating current,

which is 50Hz for China & Europe, and 60Hz for U.S. & Japan.

- **Stabilizer: Normal / Vertical.** This setting will be enabled when a lens with stabilizer feature is mounted. **Normal** is standard stabilization feature, and **Vertical** will enhance the stabilization in vertical direction which is useful in motional recording.
- **Grid display: Off / 3x3 / 5x5.** There will be a grid shows on the display while video recording / photo capturing when it's enabled.
- **LED: On / Off.** Enable (On) or disable (Off) the LED indication for video recording or time lapse photo capturing.
- **Electronic level:** It's will show an electronic level on the display while in **Video** or **Photo** mode.
- **HDMI OSD: On / Off.** On Screen Display (OSD) of HDMI will show the info of camera on the external screen when it's enabled while using HDMI output (same as the info on the LCD display on the camera). This setting can be modified only when HDMI is connected.
- **HDMI format: Auto / 720P60 / 1080P60 / 1080P30.** It's to set the format of HDMI output, and can be modified only when HDMI is connected.
- **Liveview audio: On / Off.** Enable (On) or disable (Off) the audio while in live-view mode.
- **Beep: On / Off.** Enable (On) or disable (Off) the beep sound when the **Record** button is pressed in both Video and Photo mode.
- **Fn button: Setting / MF / EV / Iris.** Set the function of **Fn** button. \*  
\* Setting is the default value. If it's set to other function, then the only way to come to **Camera Settings** is through **Quick Settings** (4.3 & 5.3 Quick Settings – Setting)
- **Power button: None / LCD off / MF assistant / Switch mode.** Set the function of **Power** button (short press), and the **Power** function still work with long press.
- **Video system: NTSC / PAL.**
  - **NTSC (default):** the video will be recorded with NTSC standard in 60/30/24fps frame rate.
  - **PAL:** the video will be recorded with PAL standard in 50/25fps frame rate.
- **CVBS output:** This function needs expansion board to support through I/O port, and it can be modified only when the function is enabled.
- **Auto power off: Manual / 30s / 1min / 2min / 4min / 8min / 15min.** Set the timing of auto power off, or never auto power off with **Manual**.
- **Auto off panel: Manual / 30s / 1min / 3min / 5min / 7min / 15min.** Set the timing of auto panel off, or never auto power off with **Manual**.
- **USB device: Mass storage / Network.**
- **Language: English / 中文**
- **Date/time:** Set the date & time of the camera
- **Version:** Firmware version of the camera. You can come to this setting and update firmware if there is firmware file in the SD card (**12. Firmware Update**)

## 10. REMOTE CONTROL

With mobile app **Z Camera**, you can control Z CAM E1 on a mobile device through WiFi or Bluetooth connection.

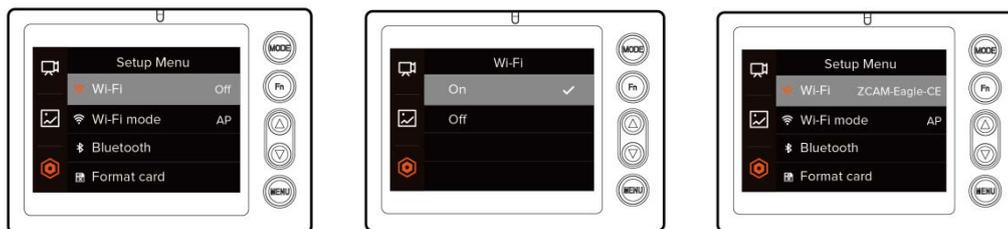
### 10.1. Download & Install App (iOS/Android)

Search **Z Camera** in AppStore (iOS) or Google Play (Android), you can find the app with the icon below and download it for free.

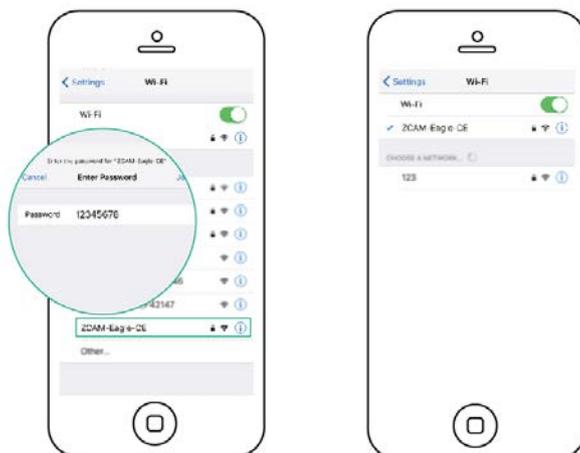


### 10.2. Remote Control with WiFi Connection

- 1) Activate WiFi on the camera in **Setup Menu - WiFi (8.4 Setup Menu)**, and you can see the WiFi ID in the setting.



- 2) Connect the mobile device to the camera with the WiFi ID and default password is **12345678**.



- 3) Start **Z Camera** app, and tap **Control** button on the screen.

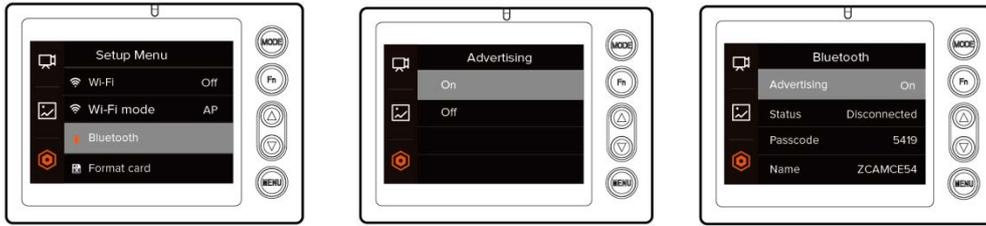


- 4) In the main screen, you can see the live view of the camera, control the camera to start/stop recording, check the videos & images in the camera and change settings of the camera.

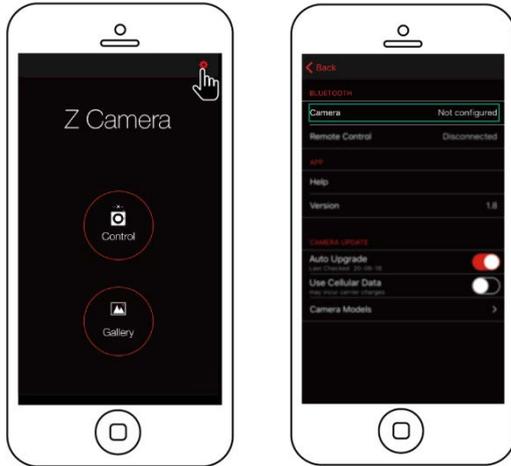


### 10.3. Remote Control with Bluetooth Connection

- 1) Activate Bluetooth on the camera in **Setup Menu - Bluetooth (8.4 Setup Menu)**, and you can see the Bluetooth name in the setting.



2) Start **Z Camera** app, and tap the setting icon on the top-right of the screen.



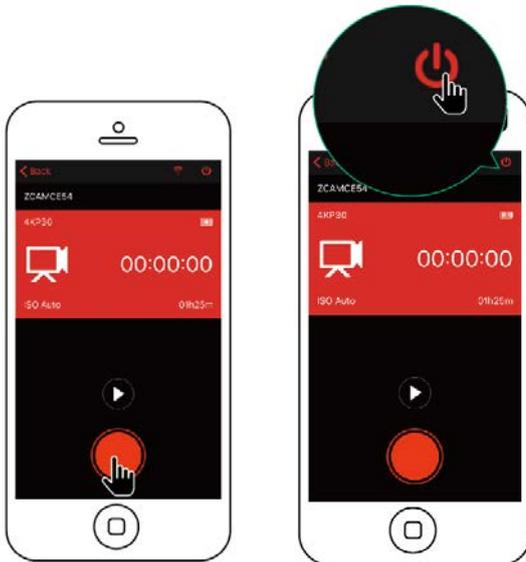
3) In the Bluetooth screen, tap Camera and select the camera (Bluetooth name) from the list, input the passcode (4 numbers) which is the **Passcode of Bluetooth in Setup Menu (8.4 Setup Menu)** if it's the 1<sup>st</sup> time of connection.



4) Back to the start screen, and tap **Control** button.



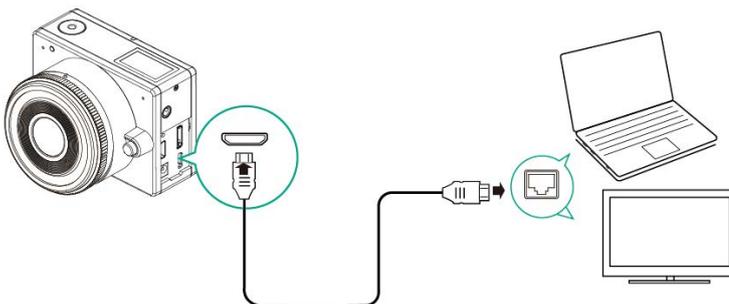
- 5) In the main screen, you will see the status of the camera (same as the LED screen on the camera) can control the camera to start/stop recording only in Bluetooth connection.



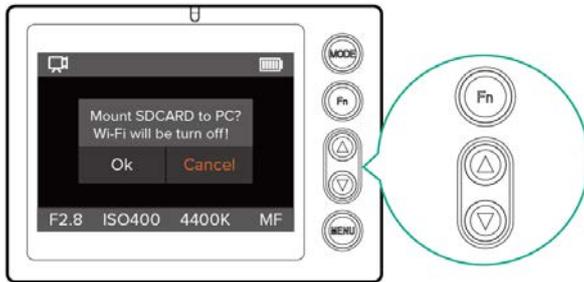
## 11. FILE DOWNLOAD

### 11.1. File Download to Computer (with USB Cable)

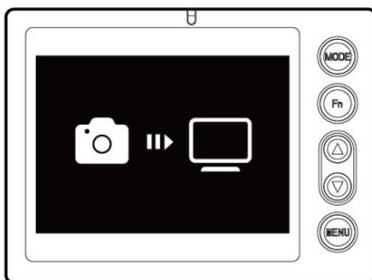
- 1) Power on the camera and connect it to the computer (PC/Mac) with a USB cable\*



- 2) There will be a pop-up window with message “Mount SDCARD to PC?”, select **OK** by pressing **Up / Down** button, and press **Fn** button to confirm.



- 3) The camera will come into USB storage mode with a file transfer image on the screen. And you will find the USB drive on the computer.

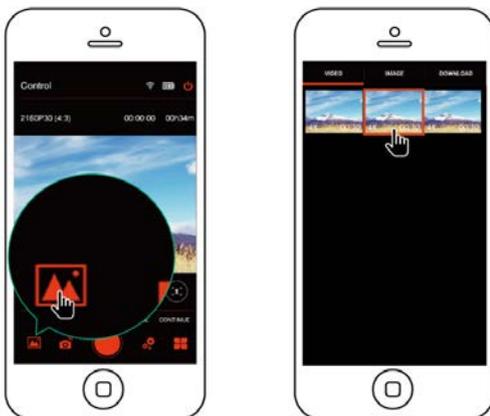


- 4) Open the USB drive on the computer and you can download the images or videos as from a normal USB drive.

\* Please make sure it's an USB cable with data transfer capability.

## 11.2. File Download to Mobile Device (with WiFi Connection)

- 1) Connect the camera to a mobile device with Z Camera app as in **9.2 Remote Control with WiFi Connection**.
- 2) Tap **Gallery** button on the start screen or tap Gallery icon  on the main screen, will show the gallery of **Video** or **Photo** in the SD Card of the camera.

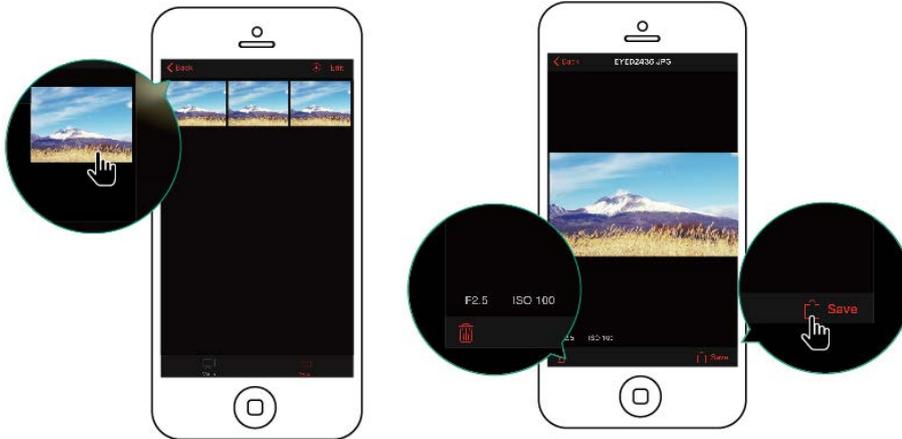


- 3) In the Video gallery, tap on a video thumbnail and there will be a pop up window to **View** or **Download**.

\* Please note that videos in resolution of 4KP30 / 4KP24 / 4096P24 / 2160P30 / 2160P24 / 1728P30 (4:3) /

4KP25 / 2160P25 can not be downloaded to iOS device due to iOS system limitation.

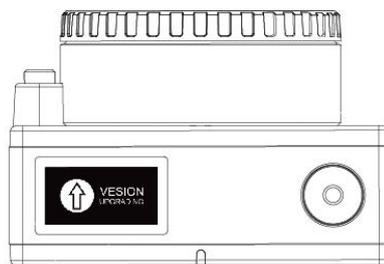
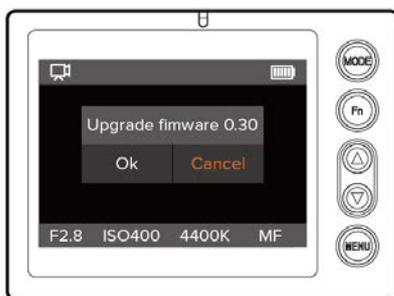
- 4) In the Photo gallery, tap on a photo thumbnail to show the full image of this photo, and you can **Save** it to the device or **Delete** it.



## 12. FIRMWARE UPDATE

Follow the steps below to update the firmware of the camera:

- 1) Download the latest version of firmware from the website of Z CAM: <http://www.z-cam.com/firmware-update/> .
- 2) Put the firmware file to the root directory of the Micro SD card.
- 3) Insert the Micro SD card and power on the camera. If the version of file in the Micro SD card is higher than the camera's one, there will be a pop-up window for firmware upgrade. Select **OK** and press **Fn** button, the camera will upgrade the firmware\* and restart the camera after it's finished.



- 4) If the version of the file in Micro SD card is same as or lower than the camera's one (to refresh or downgrade the firmware), there will be no pop-up window. Come to **Setup Menu** – **Version**, press **Fn** button and select **OK** in the pop-up window to update the firmware\*.



\* Please make sure the camera will not power off during the firmware update.

### 13. CAMERA MAINTENANCE

- As the camera is a precise instrument, please do not flop it or let it suffer physical strike.
- As the camera is a non-waterproof of camera, please do not use it in water or a humid environment.
- If water accidentally invades the camera, please shut it down, take out the battery and the memory card, and make the camera dry within 24 hours.
- As the camera's heating range is 0-40°C, please do not place or use the camera in an environment where the temperature is lower than 0°C or higher than 40°C.
- Please do not let the camera and the already installed lens face the sun.
- Please do not touch the image sensor while removing the lens.
- Please do not blow off any dust on the sensor with a dust blower.
- Please do not use any detergent containing organic solvent to clean the camera body and the lens.
- Please use soft lens cloth to clean the camera body and the lens regularly.
- Please do not disassemble the camera by yourself.
- Please take out the battery and place the camera in a well-ventilated, dry and cool place if the camera will not be used for a long time.
- Please press the shutter for several times during the storage period to verify whether the camera can function properly or not.
- Please do not place the camera in a darkroom, a lab or other places where corrosive chemicals are stored.

### 14. BATTERY MAINTENANCE

- As the battery is only applicable to E1 cameras, please do not use it for other electronic products.
- Please do not heat the battery or place it in fire.

- Please do not let the battery be affected with damp or put it in water.
- Please do not let keys, coins, necklaces and other metal articles touch the battery poles in case of short circuit.
- Please do not exert external force on the battery or drop it from a high place.
- Please take out the battery if the camera will not be used for a long time.
- As the E1 battery's heating range is 0-60°C, please do not place or use the battery in an environment where the temperature is lower than 0°C or higher than 60°C.

\* Please note this document will be updated irregularly and make sure you have downloaded the latest version from the website: <http://www.z-cam.com/e1/>

*Disclaimer: All product features and technical specifications stated above are subjected to Z CAM™ 's sole interpretation and explanation.*